• MARCH 1958

BUTANE-PROPANE News

A CHILTON PUBLICATION

NEW MARKETS ISSUE

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HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

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Photo courtesy of Carribean Gas Company

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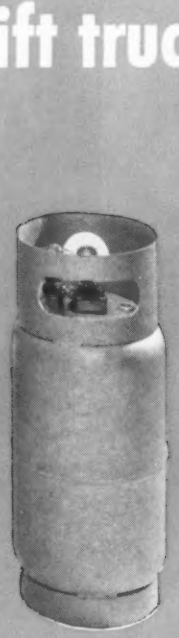
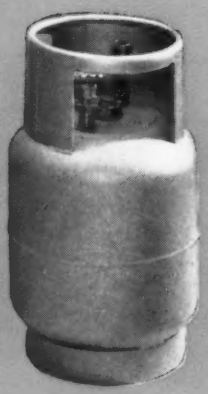
ROCKWELL

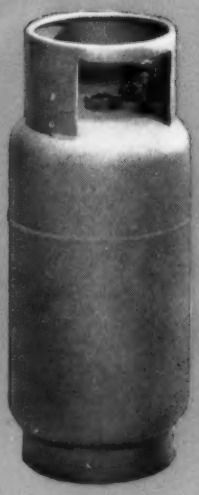
Full Hackney line helps you sell more lift truck cylinder service



Model H-14LV
14-pound cap.;
horizontal mounting



Model V-20L
20-pound cap.;
vertical mounting



Model H-33L
33½-pound cap.;
horizontal mounting

Model H-43L
43½-pound cap.;
horizontal mounting

Four capacities...20 models for any size truck...all service conditions

For all lift truck conversion prospects...for servicing your present lift truck LP-Gas customers, Hackney offers you more selling and servicing advantages.

Heart of Hackney service to you and your customers is its complete line. With a choice of 20 models in four capacities, you can install the right cylinder for any make or size of truck...part-time or continuous operation...any refueling method...horizontal or vertical installation...replaceable or permanent mounting...liquid or vapor service.

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- Throttle to bypass

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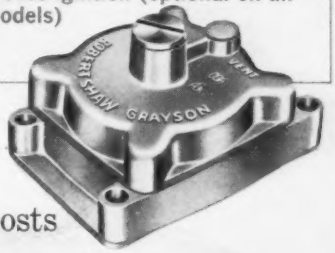

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MARCH 1958

BUTANE-PROPANE News

Volume 20-Number 3

A CHILTON PUBLICATION

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By NEIL REGEIMBAL
Correspondent

BPN Washington Report

From BUTANE-PROPANE News Washington Bureau

Demands for REA subsidy curtailment taking hold

Demands for a curtailment of the subsidy features of the rural electrification program are beginning to take hold in Washington.

But a wave of grass roots support will be needed before they are successful to offset strong farm group support for the programs.

President Eisenhower this year is again pressing Congress to adopt pending legislation to require that interest on Rural Electrification Administration loans equal the interest rates which the government must pay to borrow money itself (now 4 per cent), plus the cost of administering such loan programs.

In addition, the President, with the reluctant agreement of the pro-electric co-op Agriculture Department, is asking for legislation which would "encourage" REA co-ops to finance future expansions and new systems with private funds from banks, insurance firms, or other lending institutions.

And "the government should be authorized to permit interest rates on these loans high enough to attract private lenders," President Eisenhower says.

The Administration admits that 95 per cent of all farms now have central station electric power, and that non-farm consumers (industries and business firms located in rural areas) used about one-half of the more than 19 billion kilowatt hours of energy sales recorded by REA-financed power co-ops in the calendar year of 1957.

REA-financed electric systems are adding about 100,000 new consumers annually, the Administration says, and non-farm users "outnumber farmers nearly three to one among these new consumers."

But this "attack" on the REA programs will run into trouble in Congress this year. A good-sized bloc of farm-state congressmen are bitterly opposed to any reduction in the REA program, and will fight tooth-and-nail to prevent it.

Meanwhile the REA approved a contract between the U. S. Bureau of Reclamation and the Cooperative Power Association of Minnesota under which 18 rural electric co-ops in that state will get low-cost hydro-electric power from government public power plants on the Missouri River.

Sagging economy may get some boost from Congress

President Eisenhower is pressing for a program in Congress designed to bolster the sagging economy quickly and at the same time woo voters to the Republican party for next fall's congressional elections.

Here are several major points in his program and the outlook for passage as seen by top congressional and administration officials:

Taxes—The President would postpone for another year scheduled cuts in the 52 per cent top corporation tax rate and in excise tax rates, and put off personal and small business rate reductions unless a major recession develops. He would also cut small business tax payments by about $140 million a year by granting rapid depreciation on purchases of used equipment; permitting some small corporations to be taxed as partnerships; easing inheritance taxes on small firms, and permitting original investors in small firms to deduct more losses.

Chances are good Congress will go along with most of his program in taxes. There is an outside chance there will be a larger small business tax cut or a token personal income tax reduction.

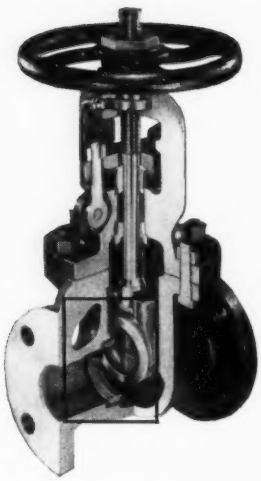
Antitrust—The President is again urging passage of a bill requiring firms planning to merge to give the government at least 60 days advance notice, and to tighten up existing antitrust enforcement laws. The outlook is good Congress will go along.

Labor—The White House is asking Congress to extend unemployment insurance to cover firms with three or fewer workers (only those with four or more are now covered), and to broaden workmen's compensation laws. The outlook for these two proposals is good.

Other proposals include measures to let the Tennessee Valley Authority (TVA) issue revenue bonds to finance a large expansion program (opposed by many private fuel interests), and raise postal income by about $700 million a year by raising most postage about one-third and adding a new 5-cent rate for out-of-town letters. The outlook for these programs is poor.

Washington flashes

Top government economists are counting on the home building industry to help spur the business pickup this year. They're ready to give it further boosts if needed. . . . Businessmen may be paying sharply increased social security taxes by the end of 1958. A proposal now before Congress to raise the taxes on wage earners and employers is gaining support among election-conscious congressmen. The measure (H. R. 9467) would raise the present social security tax of 2¼ per cent on the first $4200 of annual income to 2¾ per cent on the first $6000 of income on Jan. 1, 1959. Self-employed persons would have to pay 4⅛ per cent instead of the present 3⅜ per cent.



...and here's that same leakproof, streamlined seat ring– a steel valve feature, so good, we put it on our iron valves, too

OIC VALVES

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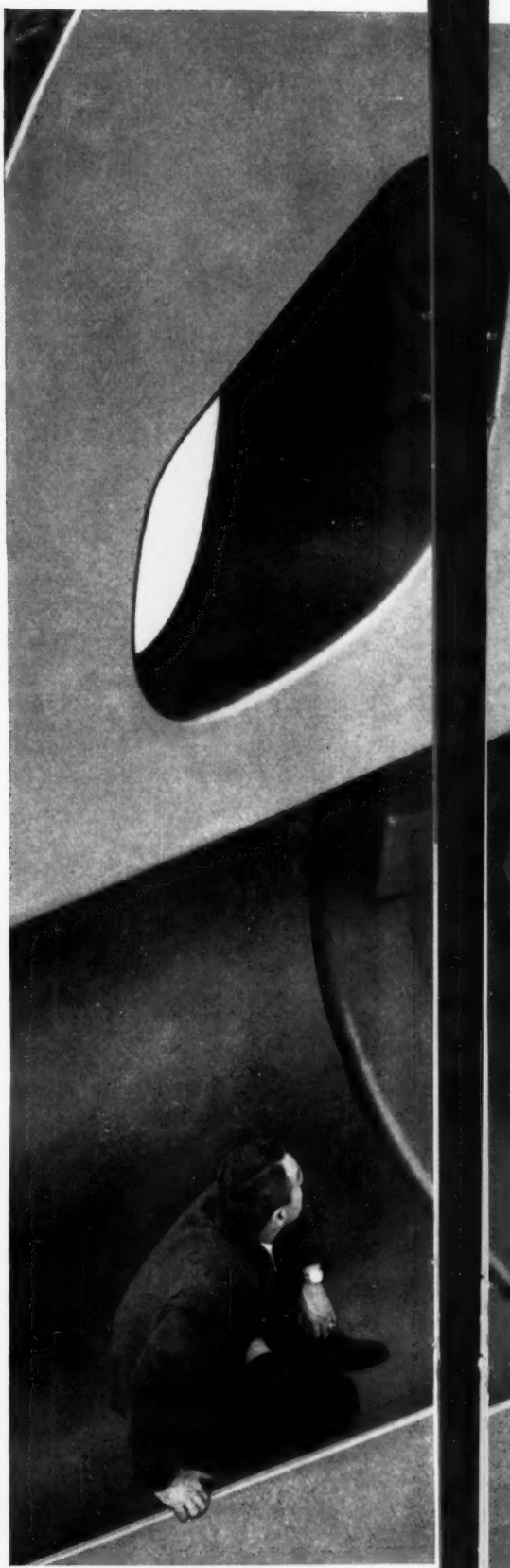
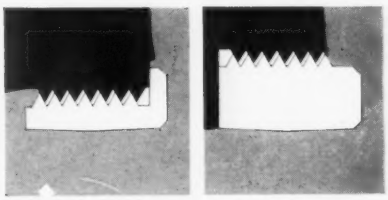


See how this *end*-seated ring fits into the valve body, out of the flow. It streamlines the body port, eliminates excessive pressure drop across the valve.

Here's how these rings reduce your maintenance problems . . .



Old-style, shoulder-seated ring cross section

OIC *end*-seated ring cross section

Old-style *shoulder*-type rings interrupt flow, cause turbulence. Since rings are seated in *tension*, they loosen and leak.

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Market survey needed to determine sales potential

Mexico

How could we obtain information regarding different aspects of the marketing of LPG in our city and vicinity, and how could we conduct them, or what could we do to obtain this information?

Study of the market for gas in this city and vicinity.

Study of consumption of gas.

Share of the market here which we are supplying.

Information in regard to use of gas.

We suppose with the experience you have in this market you will be able to tell us what to do to get this information as accurately as possible.

C. G. C.

It seems that you need a market analysis to determine the need for L. P. gas in your locality. I believe that this should be done by someone, either an individual or a firm, who is familiar with L. P. gas and with the methods of distributing it. They should also be acquainted with the customs, economics, and general needs of the potential L. P. gas market in your city and the neighboring areas.

I suggest you try to find someone capable of making a good survey through one or more of the following channels:

1. Your Mexican government services such as the ministry of economics, finance, business, or some similar department that would be acquainted with people that do business analysis work.

2. Universities in this country often help companies do such work. It is probable that some of the universities in Mexico can help you in a similar manner.

3. The Chamber of Commerce (or Mexican equivalent) in one of your larger cities can put you in touch with a competent person(s) to make a survey.

4. A reliable company now in the L. P. gas business in Mexico City, or some other city in Mexico with which you would not be in competition.

5. Your fuel supplier, either Mexican or United States, should be able to help guide you to some competent help if they do not have it available in their own company.

6. The Chamber of Commerce in El Paso or other United States city in which you are acquainted or do business can help direct you to someone in this country if you prefer the service from someone here.

The most popular use of L. P. gas is for cooking and water heating. Where the temperature drops low enough then there is the home heating market. Farming is a good market as it has the potential market for cooking, water heating, tractor fuel, fuel for operating irrigation pumps and any other service which requires fuel.—Ed.

LPG weight varies with specific gravity, temperature

Ohio

In a recent visit to Central America, I noted that LPG operators there were using a different figure for converting gallons to pounds, and vice versa, than we use in our operations. When questioned, they advised that the specific gravity of their gas was .505 (liquid). That is about standard for propane gas.

Are conversion factors for various specific gravities different and, if so, where might we obtain tables to show?

P. A. J.

The weight per gallon of LPG varies with the specific gravity. The specific gravity of pure propane is .508. There would be only a slight variation from it for LPG with a gravity of .505. The weight per gallon also varies with temperature. Possibly this was also incorporated in their conversion figures.

There are two tables in the "*Handbook Butane-Propane Gases*" which are appliable. Page 46, Fig. 7, "Weight per gallon of propane, isobutane and normal butane" shows effect of both specific gravity and temperature. Page 51, Table No. 1, "NGAA Standard volume correction factors for Liquefied Petroleum Gases" gives correction factors to convert volumes to 60°F for a large range of specific gravities.

A gallon of pure water at 60°F weighs 8.3282 lb per gal. (page 50). A gallon of LPG having a specific gravity of .505 will weigh (8.3282 x .505) 4.206 lb per gal. while propane at .508 specific gravity will weigh 4.231 lb per gal.—Ed.

Heavy ends in tank will cause carburetor trouble

North Dakota

Is it possible that a 500-gal. LPG tank, which has been on vapor service for a number of years, then converted to liquid service (bottom withdrawal) would have a concentration of heavy ends of odorant in the bottom which would be highly corrosive?

We have a circumstance similar to the above wherein we have converted a tank over to liquid withdrawal. The tank was used for farm home heating (vapor service) and during this summer liquid service for use in tractors. The tractor vaporizers have become plugged with an oily, buff colored substance.

R. C.

It is not only possible but is quite probable that there will be a heavy concentration of heavy ends in the bottom of a tank that has been used in vapor withdrawal service for a

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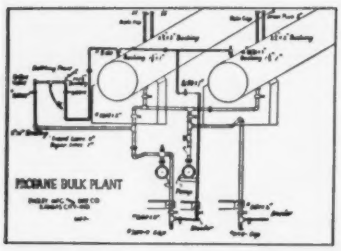
"The Loadmaster" LPG Truck Tank

PASLEY-DESIGNED Truck Tanks (see above and right) were first to feature all controls from one location. **All operation is from one point—rear compartment.**



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CALENDAR

Coming events in the Industry

1958

February 25-27—Fourth Annual L. P. Gas Management School — Sponsored by the Wisconsin LPGA and the Management Schools of the University of Wisconsin, Madison, Wisc.

February 28—Natural Gasoline Association of America Permian Basin Regional Meeting — Lincoln Hotel, Odessa, Texas.

March 3-5—Mountain States L. P. Gas Corburetion School—Colorado State University, Fort Collins, Colo.

March 6—Illinois LPGA Convention—St. Nicholas Hotel, Springfield, Ill.

March 9-11—Indiana LPGA Trade Show and Convention—Claypool Hotel, Indianapolis, Ind.

March 23-25—Ohio LPGA Annual Convention—Deshler Hilton Hotel, Columbus, Ohio.

March 24-25—Iowa LPGA Annual Convention — The Savery Hotel, Des Moines, Iowa.

March 24-26 — Southeastern District LPGA Convention and Trade Show—Atlanta-Biltmore Hotel, Atlanta, Ga.

March 28-29—Northwest LPGA District 11th Annual Convention—Winthrop Hotel, Tacoma, Wash.

April 13-15—Mississippi L. P. Gas Dealers Association Annual Convention—Edgewater Gulf Hotel, Edgewater Park, Miss.

April 16-18—Eastern Canadian District LPGA Annual Convention and Trade Show — Sheraton-Mt. Royal Hotel, Montreal, Canada.

April 16-18—Eighth Midwest L. P. Gas Service School—Iowa State College, Ames, Iowa.

April 16-18—Natural Gasoline Association of America, Annual Convention —Baker Hotel and Adolphus Hotel, Dallas, Texas.

April 16-19—Western Liquid Gas Association Convention—Fresno Hacienda, Fresno, Calif.

April 20-21—Kansas LPGA Annual Convention—Broadview Hotel, Wichita, Kansas.

May 4-7—LPGA National Convention and Trade Show—Conrad Hilton Hotel, Chicago, Ill.

June 2-5—Fifth Midwest L. P. Gas Engine School — Iowa State College, Ames, Iowa.

June 8-10—Arkansas LPGA Annual Convention—La Fayette Hotel, Little Rock, Ark.

July 13, 15—Tennessee L. P. Gas Dealers Annual Convention—Hotel Claridge, Memphis, Tenn.

number of years. The heavy ends will consist of light oils, odorants, pentanes and other similar high boiling point products. They may or may not be corrosive, but they will certainly cause trouble in carburetor equipment or any other devices through which the fuel may pass. Filters and strainers will not remove it all as the products are in solution. However, when vaporized and pressures reduced, solids come out and form deposits.

A tank used in vapor withdrawal service should be thoroughly cleaned before it is changed to liquid withdrawal service so that these heavy ends can be removed and not cause trouble in equipment using the fuel. Steaming is the best way, although a few gallons of kerosene added to the empty tank and allowed to stand a few hours will absorb most of the heavy ends and can then be drained off.—Ed.

Many variables affect sizing of boilers

Ontario, Canada

A local institution has inquired about a propane boiler to supply low pressure steam for three 20-gal. steam jacketed kettles.

I would appreciate your advice as to the method of calculating the steam boiler size required for this job.

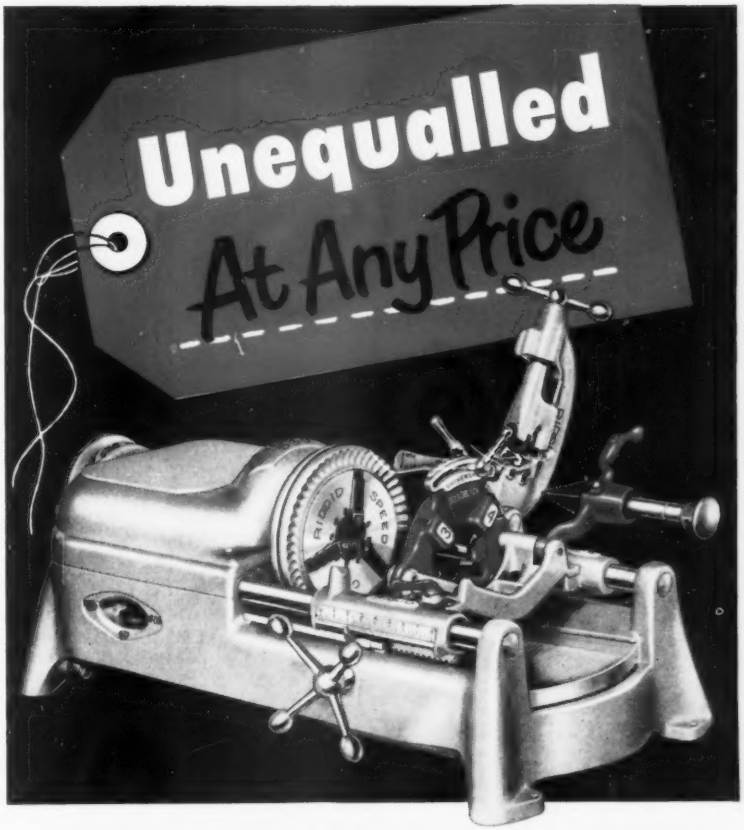
Also are there special boilers for this job or are the standard house heating boilers suitable?

R. E. D.

I can only assume that the steam kettles are to be used in a kitchen where food is prepared, since you mention they are at a local institution.

There are hundreds of uses for steam kettles, especially in food processing plants and industries. Some of these processes require fairly high temperatures and therefore require high steam pressures. Others process materials in which a reaction takes place that requires larger than normal amounts of heat. These are a few of the variables that affect the sizing and characteristics of boilers to serve steam kettles.

A standard house heating boiler will probably serve the needs of the steam kettles you mention if the heat need not be much over 200° F. Most house heating boilers operate under



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His "Carburetion Fingers" pay off	(March, '56)	2 pages 10¢
My same-sized crew services twice the fleet since conversion to LPG	(Sept., '57)	2 pages 10¢
Have a Coke, courtesy of LPG	(Nov., '57)	4 pages 10¢

Heating

Selling LPG heating beyond the mains — the story of Cookgas	(Nov., '55)	4 pages 10¢
Degree day counter saves the day	(June, '56)	2 pages 10¢
We can have schools for less money, with gas heat	(Dec., '55)	4 pages 10¢

General

Gas is the Safest Fuel— NFPA fire loss report	(Jan., '56)	4 pages 20¢
The house trailer problem is nearer solution	(July, '57)	6 pages 15¢
Trial by fire	(March, '57)	2 pages 10¢
Look for new highs in LPG sales in '56	(Jan., '56)	4 pages 10¢
Is the insurance picture better?	(May, '56)	6 pages 15¢

BUTANE-PROPANE News
198 S. Alvarado St. Los Angeles 57, Calif.

A "bosun" showed us where we were missing the boat

We were just wrapping up a Personnel-Relations meeting when the head of Marine Transportation spoke up. "A crewman aboard the *Melissa* wants to have U.S. Savings Bonds deducted from his pay. Can do?"

It was a significant question. If one employee didn't know he could buy Savings Bonds automatically through our Payroll Savings Plan, there were likely to be others. We planned a course of action.

And we did it the easy way.

We got in contact with our State Savings Bond Director. He suggested ideas for promoting the Payroll Savings Plan and provided the necessary materials—pay envelope stuffers, posters, leaflets . . . the works. And he made sure everyone received an application card.

Our employee participation rocketed. We never realized how many of our people wanted the security of U.S. Savings Bonds. The Payroll Savings Plan makes it so easy for them to salt a little away, and it's so simple to make it available.

Today there are more Payroll savers than ever before in peace time. Look your State Director up in the phone book or write: Savings Bonds Division, U.S. Treasury Dept., Washington, D.C.

BUTANE-PROPANE NEWS

THE U.S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE

15 lb pressure; 15 lb saturated steam has a temperature of about 250° F; 100 lb saturated steam a temperature of 338° F.

A 20-gal. steam kettle would hold about 20 gal. of fluid. If this is all water it will weigh about 170 lb. If there are solids present, the contents will probably weigh more but the heat required to raise the temperature of the solids is less and therefore the assumption of heating water only is the maximum demand. (If some solid is melted in the kettle, then these calculations will not be correct.)

It requires 1 Btu to raise a pound of water 1° F. So it will require 170 lb x 150° F (water from 50° F to 200° F) = 25,500 Btu to heat the 20 gal. of water. While the heating is going on there are radiation losses from the kettle and the surface of the fluid. If the fluid is heated in one hour and an allowance of 75 per cent efficiency for the kettle is used, then it will require an input of about 34,000 Btu/hr to bring the kettle and fluid to temperature. This represents 1 hp. Therefore, if all three kettles are heated at one time under the conditions stipulated, the minimum boiler size will be 3 hp. A 4 or 5 hp unit will be more satisfactory if production is an item. If one or two kettles are holding temperature, or are empty while the third is heating, then 3 hp is ample and a 2 hp may be sufficient.

We suggest you write the manufacturers of the kettles for their recommendations. Tell them exactly what is to be accomplished in the kettles. They may have a boiler or can recommend the size of boiler, proper pressure and various other items that will provide the best service.—Ed.

Not always wise to raise compression ratio

Puerto Rico

We need to know the following two items about carburetion:

1. Who makes a high altitude piston for the 1956 and 1957 Chevrolet 6-cylinder motors — 235 cu in.? We need these to raise the compression on taxis for propane operation.

2. How much can be planed off the Ford 272, 312 and 332 cu in. truck engines for propane operation? Does anyone make special high compression pistons for the Ford products?

Any further comments on these two series engines will be appreciated.

F. A. W.

I do not know of anyone who makes heavy duty high-altitude pistons for either the Chevrolet or the Ford models that you mention, although there are undoubtedly light weight, high pistons made for the boys who build them up for road racing. These would be of questionable value in taxicab service, and I would definitely not want to take a chance on them in trucks. As a matter of fact, these engines already have rather high compression ratios and I doubt if the possible improvement would justify the cost of all of the changes that you would want to make to accompany raising the compression.

If I were to undertake putting these engines on propane, I would leave the compression ratio at the current factory standard and confine the major engine changes to cooling the manifolds. I believe you can gain more by this than you could possibly attain by raising the compression.

On the Chevrolet cab engines I believe you can fit a piece of stainless steel plate between the intake and exhaust manifolds to block off the heat passage and get the results that you need at very low cost.

On the Fords you will need to cut out small wafers of metal and fit them into the ends of the exhaust passage in the manifold. You can chamfer the edges of the manifold passage and file the wafer to fit the chamfer so the metal wafer will not be drawn into the manifold. It isn't much of a job and it makes a great improvement in the operation of the engine on L. P. gas.

In working over heavy duty truck or industrial engines for LPG, it is definitely worthwhile to raise the compression. Generally speaking, current passenger car engines and passenger car engines used in trucks are high enough in compression that they had better be left alone.—Ed.

Fuel transfer problem

Israel

We seek your kind advice on the following problem:

We work with 25-lb and 100-lb cylinders and we have to sometimes transfer gas from one cylinder to another. We have in our possession only a hand pump but it does not seem to work; we have tried to put a number of cylinders in battery at a height of some 15 ft and connected the pump to this battery but after a certain time there was no flow.

I. W.

We assume that you invert the cylinders that you are trying to empty so that the liquid can reach the valve and run out of the cylinder. You cannot hope to transfer the L. P. gas as vapor with the pump which you have.

Also, keep the piping and cylinder to which the fuel is being transferred cooler than the tanks being emptied. If this is done, the liquid will transfer without pumping. However, the cylinder being emptied must be inverted and if possible placed at a higher level.

If you desire to transfer the vapor, then it will be necessary to use a small vapor pump or compressor.—Ed.

Bulk plants for industrial installations

Belgium

We are starting the erection of propane bulk storage installations for feeding factories.

We are looking for recent information about that installation such as piping layouts, bulk plant layouts, etc.

Can you supply us with practical data?

F. H.

Essentially the bulk plant for industrial service should have adequate storage to receive shipments in the most economic transport size and also store enough L. P. gas to insure continued operation for a specific length of time if the delivery of L. P. gas should be interrupted due to transportation or production trouble brought about by equipment failures, strikes, etc.

Then sufficient vaporization capacity should be provided to meet the highest instantaneous demand requirements of the total equipment served. There are gas pipe sizing tables in the 1951 printing of the Third Edition of the "Handbook Butane-Propane Gases" on pages 316 and 317.—Ed.

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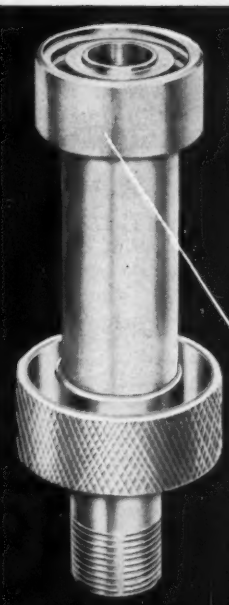
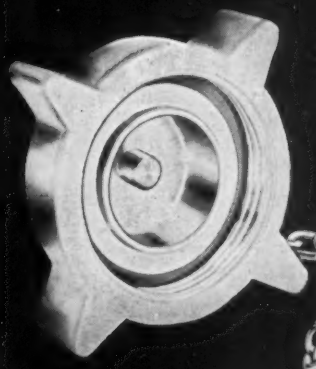


Type M396 . . . Extension Coupling with 1¾" Acme Thread and ¾" Pipe Thread.

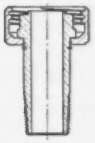
Type M111 . . . Filler Coupling with 1¾" Acme Thread and ¾" Pipe Thread.



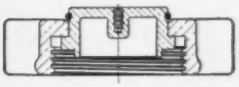
Type M440 . . . Acme Seal Cap with 3¼" Acme Thread, Chain and Ring.

Type M141 . . . Vapor Equalizing Coupling with 1¼" Acme Thread and ½" Pipe Thread.

Vapor Equalizing Coupling
Types M140—M160

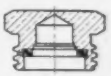


Filler Coupling
Types M100—130



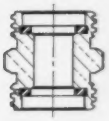
Acme Seal Cap
Types M430—M440

Pipe Thread Adaptor
Types M190—253



Acme Male Plug
Types M170—M176

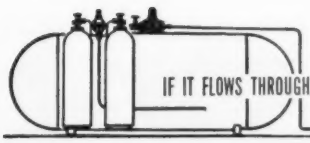
Pipe Thread Adaptor
Type M194—M262



Male Coupling
Types M270—M275

You name it...Little Joe's got it!

If it's couplings or adaptors, Fisher is your best source—the *one* manufacturer you can turn to for *all* your needs. Join the many leading LPG distributors who specify Fisher. Whatever your need, it is always on hand—always shipped promptly.



IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD . . . CHANCES ARE IT'S CONTROLLED BY

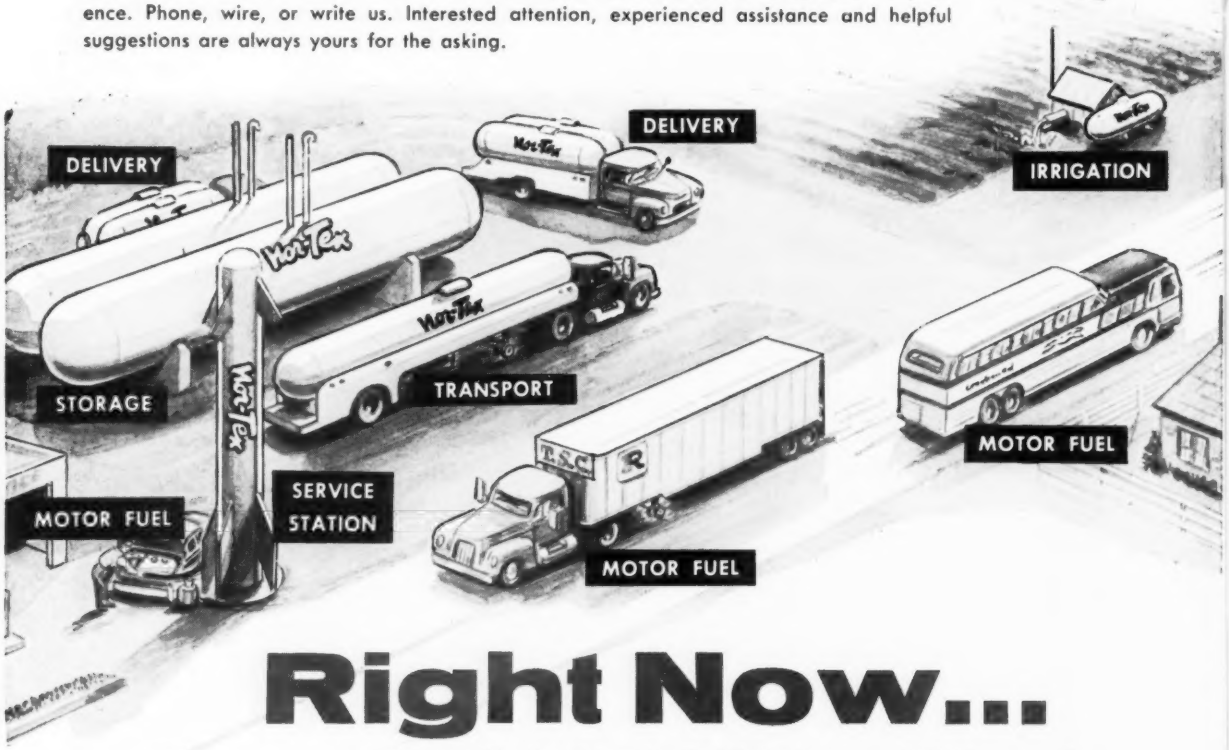
FISHER® *Controls*

FISHER GOVERNOR COMPANY Marshalltown, Iowa

SERVE THIS RICH LPG WITH LOW COST Nor-Tex

WHATEVER YOUR NEEDS in LPG equipment there is a factory tailored Nor-Tex unit ready for you. We are truck distributors and we manufacture LPG Truck and Transport Tanks, all types of LPG Tractor and Motor Fuel Tanks, Portable LPG Filling Stations, new space-saving vertical "Rockets", Trailer Tanks, LPG Storage and Domestic Tanks, Farm Carts and Anhydrous Ammonia Tanks, all built by men with years of Butane-Propane bulk plant experience. Phone, wire, or write us. Interested attention, experienced assistance and helpful suggestions are always yours for the asking.

MEMBER LPGA



Right Now...

there are Nor-Tex Conversion Fuel Tanks in use on trucks, busses, cabs, pleasure and business vehicles, tractors and farm machinery, pumps, construction and earth moving equipment, materials handling equipment, pipelines and drilling equipment . . . in fact, on all types of Internal Combustion Engines. Plan, now, to serve this rich LP-G fuel tank market *in your area.*

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Nor-Tex PRODUCTS COMPANY

National Sales Agents for

Truck Owners Praise Nor-Tex 100-Gal. (PER SIDE) Step Tanks

More and more fleet and individual truck owners are installing Nor-Tex custom made LP-G fuel tanks to increase their pay loads and lower their operating cost. They praise Nor-Tex tanks for their safety features and special design for placing the weight on the front axle.

BALANCE YOUR LOAD THE

NORTH TEXAS

FUEL TANK MARKET CUSTOM TANKS

Nor-Tex TRAC-TOR TANKS are available for immediate delivery in every size and design to fit all models of Allis Chalmers, Case, John Deere, Ford, Ferguson, International, Farmall, Massey Harris, and Oliver tractors. Steering shaft through tank styles also in stock. Nor-Tex custom-built tanks come complete with mounting brackets and fittings for quick, easy installation. All Nor-Tex tanks are "production line priced."

Nor-Tex MOTOR FUEL TANKS are available for immediate delivery in every size and design for all truck models. Complete with brackets for quick, simple, easy mounting. The streamlined welded steps snug the chassis and are flush with the fenders. Comes complete with fittings installed at 90% level. Just bolt them on and connect them up.

Sell Tractor Conversions

Conversion business is booming! Nor-Tex continues to go "all out" to provide dealers with the means of overcoming the "ratio bugaboo." With users reporting fuel savings up to 60% and oil consumption reduced up to 80% many dealers have already made great strides in balancing their summer and winter loads. Consider the many possibilities pictured. Plan them into your program. Let Nor-Tex help you overcome the "BALANCE" problem. Our experience and help is yours for the asking.

Immediate Delivery On All Units
Write, Wire or Phone for Prices

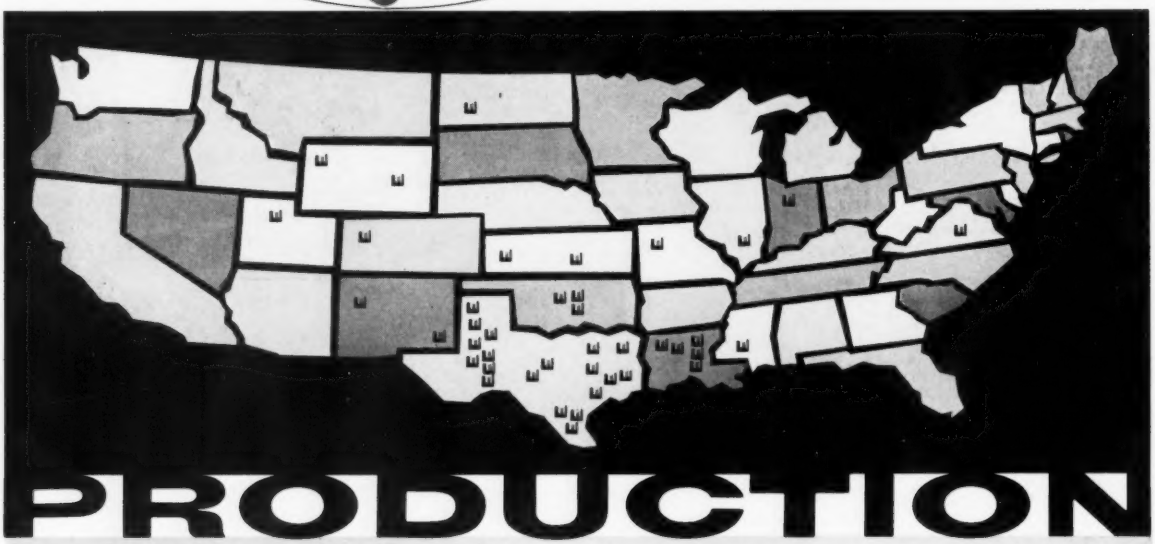
Nor-Tex LOW COST LPG Financing

A PLAN TO MEET EVERY NEED

NOR-TEX WAY — FINANCE THE BALANCE

TANK CO.

P. O. BOX 1219
DENTON, TEXAS
DUpont 2-5416



PRODUCTION

DEPENDABLE — STRATEGICALLY LOCATED

The worry of adequate supply has been long forgotten by the Tuloma contract customer. He knows Tuloma supply sources are among the largest and most modern plants and refineries in the nation, strategically located in 14 states. Tuloma can handle all of his LP-Gas requirements, wherever he may be, whatever the time of year. In other words, Tuloma gives him protection to plan for expansion.

For full details . . . WRITE, WIRE OR CALL THE TULOMA OFFICE NEAREST YOU

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Tuloma LP Gas

TULOMA GAS PRODUCTS COMPANY

Pan American Building • Phone CHerry 2-3261 • Tulsa, Oklahoma

beyond the mains

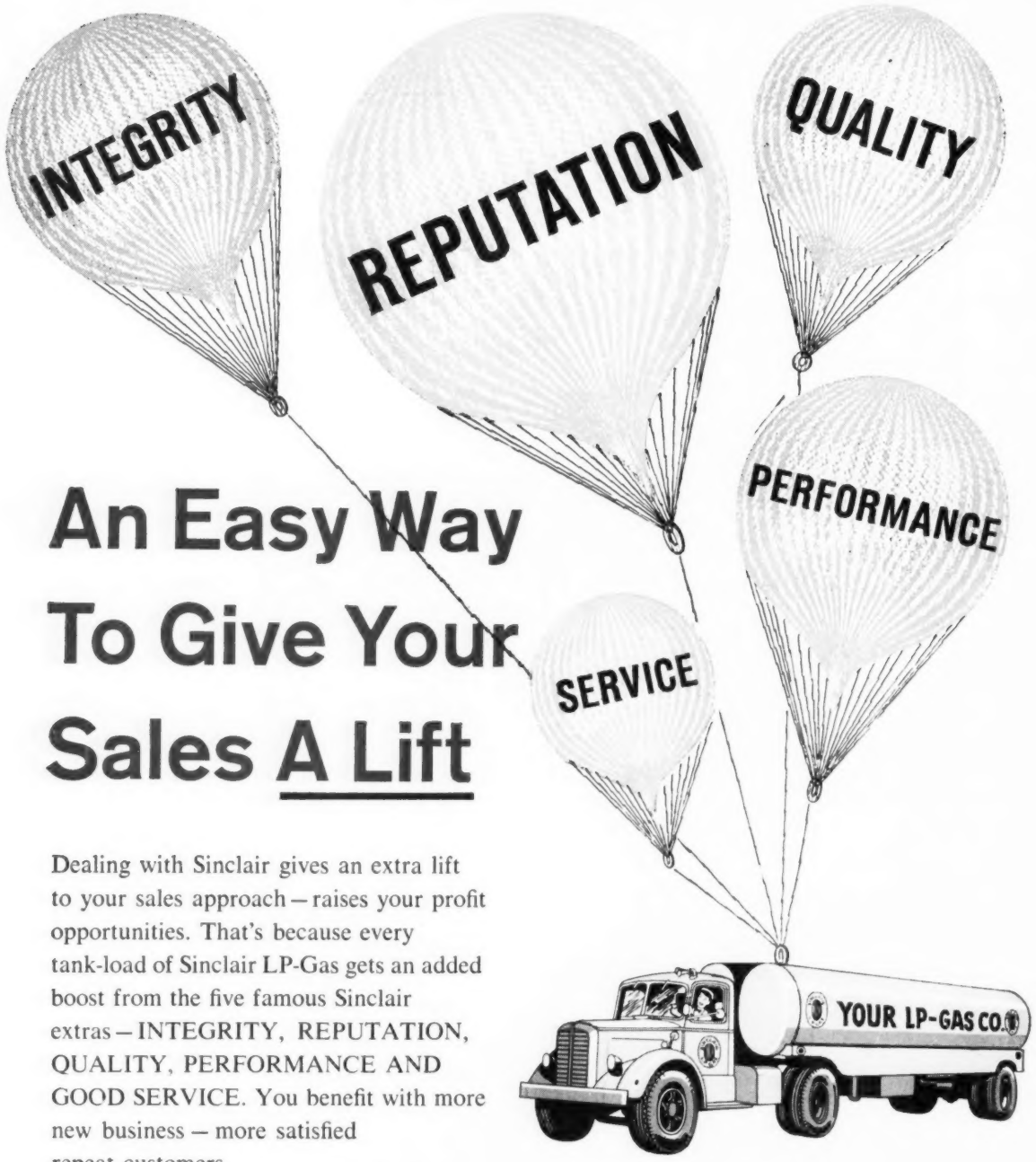
DO YOUR SCHOOLS HAVE L. P. GAS RANGES? We are shocked at the increasing evidence that electricity has been allowed to steal the play in the important business of pre-selling future homemakers. The immediate cause of this blast is a survey recently made by LPG dealer Dan Harlan in Mobile County, Ala. That county has 12 high schools in the rural areas. Only three of these have modern gas ranges--all supplied through one company--National Butane Co. Of the other nine high schools, only four had any gas ranges. The newest of these ranges were six years old, and all were in bad condition. Some did not even have pilots. Now, get this: five of these nine schools had from two to four new electric ranges each, in spite of the fact that the teachers in every one of these schools stated that they would prefer to use gas ranges.

As an industry, we are missing the boat on one of our most important means of protecting present business and creating future business. We hear dealers complain that the gas appliance manufacturers do not carry a large enough share of this burden. Manufacturers tell us that dealers do not take advantage of the offers that they make. Who is kidding who? And where do we go from here? We have a concrete suggestion, and we hope that both sides of the industry will take it seriously.

The range manufacturers should, through their own association, develop a standard program, as liberal as they can make it, to help dealers get the rural high schools and junior colleges equipped with gas ranges. This deal should apply only on the "top of the line" CP ranges, to be sure that the future homemakers will have personal experience with gas cooking with all the modern conveniences. The discount should be such that the dealer can afford to install a new range in the school each year, the sale price of the used range covering all or most of the dealer's cost for the new range.

Working on this basis, each school could be provided with a new range every year at no cost except the initial investment in the first range. True, the dealer would not make a profit on that particular transaction, but this would be far more than offset by the promotional value. And suppose that the school needs two or three ranges in that Home Economics laboratory? If there are that many people in the community, isn't it worth the extra trouble to supply the extra ranges on the same basis?

Continued



An Easy Way To Give Your Sales A Lift

Dealing with Sinclair gives an extra lift to your sales approach – raises your profit opportunities. That's because every tank-load of Sinclair LP-Gas gets an added boost from the five famous Sinclair extras – INTEGRITY, REPUTATION, QUALITY, PERFORMANCE AND GOOD SERVICE. You benefit with more new business – more satisfied repeat customers.

Ask us for the facts on this top quality LP-Gas with high heating value – moisture and impurities removed. Then, make the switch to Sinclair.

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Sinclair Oil and Gas Company
Liquefied Petroleum Gas Sales Department
Sinclair Oil Building, Tulsa, Oklahoma

SINCLAIR
A Great Name in Oil

And in many cases this action will enable you to keep electric ranges out of the school kitchen.

And suppose that you have a competitor down the street who might want to take this play away from you. Isn't this something on which you should logically work together for your common benefit? Shouldn't you handle it as a joint venture, dividing or alternating the supplying of the ranges, and each taking his own range back after the year's service? This is your common fight against Reddy Kilowatt. If you can arrange to help each other on this program, it might open the way to better relations right down the line. We sincerely believe that all local competitors will sell more gas if they team up on deals like this.

THE HEAT IS ON AGAINST SPECIAL PRIVILEGES FOR REA AND TVA.

While there has been no reply to our letter of December 13 to President Eisenhower on these subjects (See BPN, February issue, page 33), they are getting serious consideration from the White House and in Congress. Our voice was just one of many that were raised in this connection, and we know that the fight is not yet won. There will be strong opposition to this program, particularly from the Farm Belt, the Pacific Northwest, and the powerful REA and TVA lobbies. We do know that this is the most opportune time since REA and Government Power were born to get these tax inequities off our backs. The REA also realizes this, and has already mapped strategy to fight for its life. The following is quoted from a press release dated February 2 from the National Rural Electric Cooperative Association headquarters:

"EISENHOWER'S PROPOSALS TO ABOLISH REA TO BE CHIEF CONCERN OF NATIONAL RURAL ELECTRIC MEETING. Bold new policies to counter the Administration's redoubled efforts to undermine, if not kill outright, the rural electrification program will underscore the National Rural Electric Cooperative Association's 16th annual meeting of members in Dallas, February 3-6. The Administration's proposals would force borrowers to Wall Street, and increase REA's interest rate. The significant theme, 'Stand Your Ground,' will be repeated throughout the three-and-a-half day meeting. . . ."

The NRECA maintains a potent lobby on Capitol Hill, and if you think this isn't going to be a fight! . . . brother, just watch. In the meantime BUTANE-PROPANE News is preparing to ask 2500 other industry, trade and business publications, the leading business syndicate writers serving the daily press, and numerous leading business associations to join in the fight. We can win this battle if enough voters put the heat on their senators and congressmen. Have you gotten your letters off to Washington?

Earl Abell

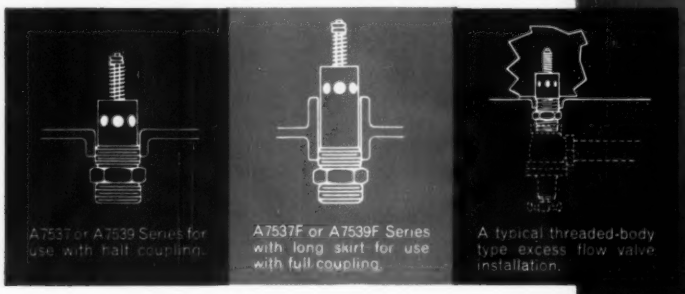
just one of these

REGO

EXCESS FLOW CHECK VALVES

ahead of your pump could save you as much as

$1,000.00 per year!



A7537 or A7539 Series for use with half coupling.

A7537F or A7539F Series with long skirt for use with full coupling.

A typical threaded-body type excess flow valve installation.

2"—A7537 SERIES

3"—A7539 SERIES

What about *your* storage tanks and delivery trucks? If you're not already using these *low-pressure-drop* RegO Check Valves, you are wasting time and big money due to starved pumps with low output and short service life.

For example, the RegO A7537L has a pressure drop of only 1 psi., yet closes at a flow of 72 gallons per minute. It has scarcely more than *one-fifth* the resistance of many older threaded-type excess flow valves, yet closes at the proper capacity for a 50 gpm. pump. This means faster fuel delivery, less cost per gallon pumped, better protection against accidental liquid or vapor losses.

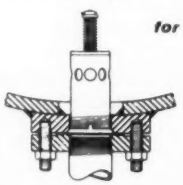
With the RegO 3500 and A3500 Series, users have a complete choice of low-pressure-drop excess flow valves for flanged tank installations—all easily installed and readily accessible. Valves incorporate no-bind stem and self-centering check disc for proper closure.

Pump makers say excess flow valves are the most important single item affecting pump operation; recommend immediate replacement of old flow-hindering units. One pump manufacturer has demonstrated savings up to $1,000.00 per year, *per delivery truck*, where low-pressure-drop excess flow valves are installed. Find out what a difference the right valve makes in better performance with safety. The *right valve* for you is RegO!

for money-saving reliability, it always pays to buy RegO

3500 SERIES (Brass) for LP-Gas (2" or 3" NPT Male Inlet)

A3500 SERIES (Steel) for Anhydrous Ammonia or LP-Gas (2" or 3" NPT Male Inlet)



A typical flange-type excess flow valve installation.

FULL FACTS FREE

RegO makes many other check valves in addition to those shown here, and all are available with variations which adapt them to specific service requirements. Free catalog gives complete information. Write for your copy today.

The BASTIAN-BLESSING Company

COMMERCIAL GAS AIR CONDITIONING

YOU can sell it NOW

This might be the major breakthrough that you have been waiting for—and it can be done almost anywhere.

By HARRY J. MILLER • BPN Correspondent and CARL ABELL • Editor

IS the electric power industry giving you trouble by trying to grab off part of your winter heating load? Do you know what causes that? Here it is in a nutshell, and here is what our industry can do to ease their pain.

The electric power industry is troubled—really troubled—by the unbalanced summer/winter demand brought about by the recent great expansion of summer air conditioning. Now it must either expand its generating facilities and build winter loads, or turn down some of the summer air conditioning load. Its seasonal unbalance is becoming just as bad as the gas industry's, only it is the other way around.

The L. P. gas industry can get some of that summer air conditioning load right now, without waiting for the development of the several new methods of gas air-conditioning that we hear are "in the works." Those are mostly for small residential units, and we

The Dutch Pantry Drive Inn (below), St. Petersburg, Fla., replaced its electric air conditioning system with a propane operated system (top of page).

must wait until they are available in quantity.

But the commercial sized units, which produce larger and more desirable loads, we can get right now. For the past several years we could have been getting a lot of that business, except for one thing. We have been Rip Van Winkling on the job. This is not idle theory. The St. Petersburg Gas Appliance Co., St. Petersburg, Fla., is showing the world how it can be done. And now that the facts are out, we wonder why some budding genius in the L. P. gas industry did not see it 15 years ago.

A look at the market

This situation causes even more wonder when we look at the potential market. One of the first and largest markets for commercial air-conditioning was restaurants. All of the larger and better restaurants now have it. In recent years and almost everywhere in the country, even the small hamburger stands and beaneries have either installed air conditioners, or they have become or are on the verge of becoming statistics. New restaurants being built outside the utility gas zones are prospects for new air-conditioning units, and you want to catch them during the design stage. Some of those now operating on electricity might be converted.

Motels are in the same situation. No air-conditioning, no summer customers. The new ones all have it built in; many of the older ones have individual window units. Those that are built compactly could generally profit from the installation of a central air-conditioning plant.

Resorts and summer hotels—same situation. Industrial buildings, shops, offices, factories—any place beyond the gas mains where numbers of people work under the handicap of hot weather needs to be air-conditioned. A new market is on the way up in hog houses (see "Revolution on the Pork Chop Front" in this issue). Also milking parlors—we used to call them dairy barns before farming became sanitary and cows became socially conscious.

And don't overlook the country churches, particularly the larger ones. With the farmers' homes cooled and the House of God hot, they all have trouble with attendance and the collection plate. They require big cooling systems, but they cannot afford to pay the electric company's "connected load charge" for the few hours per week that the system runs. This is the ready-made opportunity for the propane-powered system. And while we are speaking of places of assembly, see what can be done about the local grange, country clubs and various community halls. There is no better means of promotion than to have a good air conditioning system operating on your fuel in these places where the neighbors gather.

How does it work?

Most air-conditioning units of commercial sizes operate by circulating a volatile refrigerant through an expansion chamber, where it absorbs heat, and then on through a condenser where it gives up heat.

Cooling of the desired space is accomplished by circulation of chilled water or air between the chilling coils and the space to be cooled. By this means the room heat is transferred to the refrigerant, which must then get rid of it. The heated refrigerant is cooled by passing through a condenser or cooling tower, where circulating air or water takes out the heat.

The refrigerant is circulated by a compressor, and the movement of air or water is accomplished by blowers or pumps. All of this requires power, which is generally supplied by electric motors. The air-conditioning equipment manufacturers make or assemble the machinery that does the cooling, and it is a complete system. They do not make the electric motors—they buy these, and attach them to the cooling system.

Power is power, no matter what its source. Gasoline, gas, diesel, steam or falling water would do just as well, as long as it is reliable and can be controlled to provide automatic operation when and where needed, and at the right speed. Beyond that, it is purely a matter of economics which source should be used.

The new R & J Charcoal Broiler, St. Petersburg, was equipped with propane engine operated 15 ton air-conditioning system before it opened.

In most areas a propane operated engine will do the job more reliably and at less cost than the customary electric motors. Such engines are available in suitable sizes and speeds to operate air-conditioning units of from 5 tons on up. They can be mounted right on the structural steel frames of the air conditioning units, with direct drive to the compressor. The other machinery is driven by belts.

The controls are simpler and less expensive than those required with electric motors, and the same inexpensive set will handle any size engine from 5 to 500 hp.

Use standard units

Nothing new is involved. Over the years the air conditioning equipment manufacturers have developed efficient and reliable units and made them available throughout the land. They have also developed

service organizations that know how to take care of them and keep them working.

Likewise, propane power systems are not new. They have been working and giving a good account of themselves for more than 25 years. Those in use today in tractors, trucks, automobiles, industrial conveyances and in water pumping and numerous other industrial uses, number up in the hundreds of thousands.

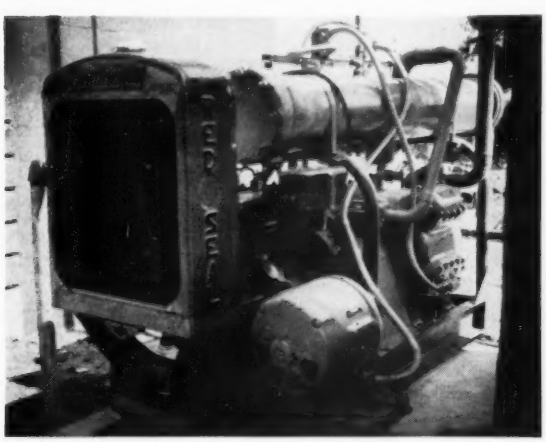
And propane-powered air conditioning is not as new as you might suspect. Two manufacturers already turn out internal combustion engine-driven units, with propane fuel systems available. Other and larger manufacturers have made up special propane engine-driven units for special installations away from the power lines.

Air conditioning is a specialty, but that need not worry the L. P. gas dealer. No matter where you are, there is an air-conditioning equipment dealer near you who can size the job, supply the air conditioning part of the set, design and install all of the necessary ductwork and auxiliary structures, and service that part of the job. The engine, drive connections, carburetion system, fuel supply, controls and starting system must be added. There are a few air-conditioning dealers who can do all of this, but for the present, in most cases, that part of the job must be handled by the LPG dealer or a competent industrial engine shop.

Cost of installation of the complete job is directly comparable with electricity on small commercial units, and considerably less on the larger sizes, because the heavy wiring and expensive controls necessary for large electric motors are not needed with the propane driven unit.

Florida dealer doing it

At this point let's check in on the experience of the St. Petersburg Gas Appliance Co. They have a team that is doing the job and showing the way for the L. P. gas industry. It consists of Charles R. Anderson, vice-president, a veteran LPG man and the Florida director of LPGA; C. B. DeBerry Jr., general manager; and Earl F. Schreiner, air conditioning salesman.



R & J's engine and compressor during construction. Special starting motor in foreground. Horizontal cylinder over engine is water jacketed exhaust silencer which supplies 60 per cent of the hot water needed in kitchen.

Early in their program they found a restaurant operator who was burned up because his electric air-conditioning system had stopped working 13 times during the previous year on account of power failures. The L. P. gas service to his cooking and water heating equipment had never failed. Would it give as dependable service in powering the comfort cooling system?

The installation was made, using a factory-built Weatherbuster air conditioning system. It has been in continuous operation for more than a year, during which time it has never failed to operate. The only service required in that time was replenishment of crankcase oil. It uses about two quarts per month during the operating season. The engine drives the compressor and cools its own radiator. A ¼-hp electric motor, connected to the restaurant's 115 volt system, operates the aerating fan. No heavy wiring is required, and there is no "connected load" charge.

Two air-conditioning equipment manufacturers now manufacture lines of gas engine driven complete systems. Weatherbuster Corp. makes them in 3, 5 and 7½-ton sizes. Ready Power Corp. makes complete units of from 22 tons up to 150 tons. These units may be installed in multiple to fit any operation requiring greater cooling capacity. The gap between 7½ and 22 tons is unfortunate, because many of the jobs available to the L. P. gas dealer come within that bracket. Weatherbuster is doing development work on these intermediate sizes.

Assembles its own systems

St. Pete Gas Appliance Co. found that its greatest potential was in the unavailable sizes, and when it went after larger size installations the competition was harder to handle. This led to the firm's present practice of assembling its own systems, using proved and accepted air-conditioners of leading makes designed for electric operation but substituting LPG engines for the electric motor drive.

Heavy duty type industrial engines such as Continental and IHC, with plenty of reserve power above the maximum requirements at the full load of the air-conditioning mechanism, are used. These are available factory-equipped for LPG. A simple engine governor modulates the fuel input to match the required horsepower output for any operating speed. This eliminates the need for the expensive step control required for electric driven units, particularly in the chilled water installations. It also makes a big difference in operating cost during the light load periods, since the LPG engine maintains much higher efficiency than the electric motor under part-load conditions.

The secret of successful operation on propane is in the controls and the starting system. The regular starting motor is taken off the engine and replaced with a larger and more powerful motor energized from a source other than the battery that supplies

ignition current. The regular battery then supplies current only for ignition and any electrical instruments connected with the engine.

This creates the ideal condition for easy and certain starting. When the thermostat calls for cooling, the engine will make three attempts to start, if needed. It generally starts on the first or second attempt, in which case the repeater cuts out and normal operation proceeds. If the system goes through three attempts and fails to start, it automatically locks out. Another sequence of three attempts can be started by pressing a reset button on the thermostat. As indicated above, manual attention is almost never necessary—the system is extremely reliable.

As additional safety protection against malfunctioning in any part of the system, the unit will automatically shut off in case of low suction or high pressure in the compressor, excessive engine heat, low oil pressure, or almost anything else that interferes with normal operation. In these respects the system is just as well protected as the automatic electric motor system that it replaces.

When using a water-cooled air-conditioning system driven by a propane power unit, the pump for the cooling tower can also be run off the engine, thus eliminating another electric motor and its extra wiring and controls.

Minimum of service

Service problems are held at minimum with the propane engine. In most cases it will go through an entire season without an unscheduled stop. It does require periodic checking of lubricating oil. St. Pete Gas Appliance Co. finds it advisable to connect an auxiliary oil supply to maintain the crankcase level automatically. This is a simple reservoir mounted beside the engine. It has a simple, inexpensive control made from the carburetor of a pot-type oil burner that operates very much like an automatic chicken waterer, supplying extra oil only as fast as engine consumption makes it necessary.

A mounted tachometer provides a spot check on speed and indicates the number of hours of operation. This provides a continuing guide for the regular maintenance visits. Units that operate around the clock, as in 24-hour restaurants, are checked out every 30 days.

Noise has not been a problem. With the engine properly housed to protect it from the weather, and a water-jacketed heat exchanger that also acts as an exhaust silencer, the noise level measures just about the same as the electric driven units. The sound is more agreeable to most people, because it lacks the high pitched whine of the electric motor.

Supplies free hot water

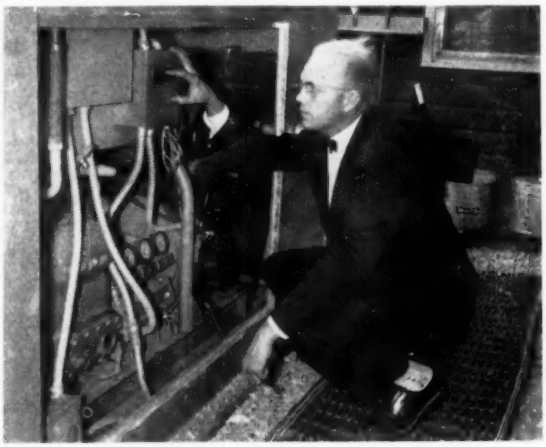
It is a well known fact that approximately 70 per cent of the heat from fuel burned in an internal combustion engine is wasted through the cooling system and the exhaust. About half of the waste heat goes out with the burned gases. By using the water-jacketed muffler, enough of this heat can be captured to supply from 60 to 70 per cent of a restaurant's need for 185° water for dishwashing.

Getting this hot water to the kitchen is a simple and inexpensive plumbing problem. The restaurant operator can then have that portion of his hot water, while the engine is in operation, at absolutely no cost beyond maintenance of the plumbing. (Several of the larger engine factories get most of their hot water for winter heating by utilizing the waste heat from engines on their test stands.—Ed.)

Likewise, there is no trouble with exhaust odors when using the propane engine, although this has been a serious complaint with gasoline engine driven units.

Cost comparison

Mr. De Berry cautions that in selling these installations in competition with electricity, the cost calculations should be made on the basis of operation throughout the year. The price of the bare equipment before installation will not differ a great deal. Depending on local prices for LPG and power, the electric competitor may be able to show a reasonable approximation of the same theoretical cost of operation at maximum cooling requirement.



Except for the thermostat in the dining room, the simple controls in the two boxes shown by St. Petersburg Gas' Earl F. Schreiner are all that is required for complete automatic operation of the system.

But this is not the whole story in either first cost or operating cost. The installation of a large electric operated unit will require from $1000 up for heavier wiring, control panels, switches, and all the other expensive equipment to complete the job. The wiring and controls for the propane job will cost between $100 and $200, regardless of its size.

He also points out that the propane engine maintains much higher relative efficiency at light loads, hence the figures at maximum cooling do not give a true comparison.

Another factor in favor of the LPG unit is the de-

This was the pilot model propane engine operated air-conditioner designed by Earl Schreiner for the offices of Gulf Cities Gas Co., St. Petersburg.

mand rate that is generally a part of operating cost on electricity. This goes on constantly, even during the months when the air-conditioning unit is not in use. There is no comparable charge in connection with LPG, and this is a direct saving. Some utilities also have an extra charge called "escalator" for use beyond a certain minimum figure, and there is a 10 per cent utility tax to be figured on the current consumed.

When all of these costs are added on the basis of a full year's operation, the electric bill is quite likely to be a third higher than the year's fuel bill for a propane operated unit.

St. Petersburg Gas' experience to date indicates that the fuel consumed per ton of cooling runs between .09 and .11 gal. per hour. To this must be added the cost of electricity to operate any small motors included in the system. These are small, and do not require heavy wiring, and are not subject to the demand rate.

Engine oil and service complete the cost picture as far as daily operation is concerned. Depreciation and other overhead charges are approximately the same.

Sales pitch

In making the sales pitches, St. Petersburg Gas Appliance Co. gives the prospective customer a complete written estimate of the comparative operating cost, taking in all of the above factors, and with the number of operating hours based on the data published in the American Society of Heating & Ventilating Engineers Guide. This is submitted with the bid on the complete propane operated cooling system. One of their typical cost estimates based on a 200 ton unit shows a saving of $1982.20 for the year.

Mr. De Berry also cites an example of bidding on a 15 ton unit that would cost $7000 installed, against $6800 for an electrical unit of the same size. That looked bad until it was discovered that a rewiring job costing $2000 would be necessary in order to operate the big electric motor and its controls, whereas the ¾ hp motor included in the propane unit would require only a simple wiring job that could be connected to the existing circuit. When this difference in installed cost was pointed out, the odds were greatly in favor of the propane unit. When the operating costs for the year were figured out, the total saving on LPG was 30 per cent. They got the job.

In comparing Florida costs with those in areas farther north, it should be borne in mind that the season when cooling is required is not so long in the northern districts, nor is the number of days and hours when cooling is required so high during the season. This puts the odds still greater in favor of LPG, because with a shorter season the demand charges for electricity become a higher percentage of the power costs.

St. Petersburg Gas Appliance Co. reports that in its territory the air-conditioning load gives a 3/1 inverse ratio. There is obviously more overlap down there into the winter period. This would hardly be the case farther north, where practically all of the load would come during the summer period.

Heavy summer gas load

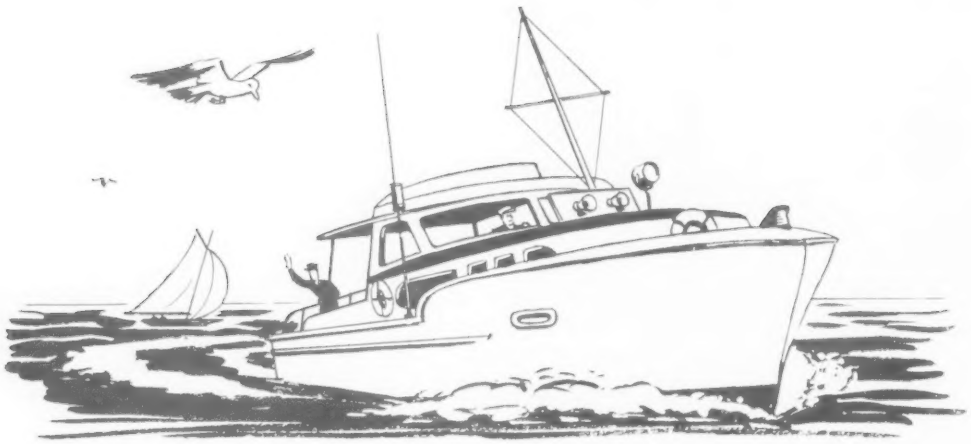
And it is quite a load. De Berry's figures show an average of .1 gal. per hour per ton of cooling capacity. He shows that a church installation with a 50 ton unit used only six hours per week will consume 120 gal. per month during the warm season, and will also give the dealer a world of good publicity.

Or consider a small restaurant with a 15 ton unit operating 12 hours per day. That adds up to 540 gal. per month. It does not take many of these to make a big difference in the dealer's winter/summer load balance. If that figure can be taken as an average, air-conditioning equipment totalling only 2700 tons will provide just about 500,000 gal. of volume during a five month air-conditioning season.

While this activity may be new and strange to many LPG dealers, getting into it is not as difficult as it sounds. You do not need to know air-conditioning engineering. There are trained dealer organizations near you who can take care of the sizing, installation, and servicing of that part of the system. They can obtain the complete cooling mechanism, less the drive motors. The base may need modifications to mount the gas engine. Any good welder can do that part of the job.

Select a good husky industrial type engine that will provide a reasonable reserve of horsepower at the maximum required speed for the compressor, which is generally 1750 rpm. Good engineering practice calls for selection of an engine that will deliver the required power at not more than 65 per cent of its rated capacity. Such an engine will do the job easily and dependably for many years.

The engine drives the compressor through a short flexible coupling. After that, all that is required is the starting system and controls. Mr. De Berry has very kindly offered to supply any information needed in that connection. His company is also prepared to build up complete units for other dealers as a means of getting them started in this profitable activity. ■



Suburban Propane's Marine Division

GAS IN EVERY PORT

Like so many other participation sports, boating has shown tremendous growth since World War II. Last year, 35 million Americans—20 per cent of the population—took part in what was once considered the sport of millionaires. These water enthusiasts spent more than $2 billion for boats and equipment, a good deal of it at America's 10,000 waterfront berthing and launching facilities which include 2100 first rate marinas.

And wherever Americans go, they want good, hot food and plenty of hot water. The fact that they are on a boat doesn't change that one bit. This is where LPG enters the picture. Together with marine appliances, LPG provides all of the comforts and advantages of gas cooking and water heating right on shipboard.

The marine market for L. P. gas and appliances is a rapidly-expanding one. The total number of pleasure boats in the U. S. has tripled during the past 10 years. There were 7 million afloat in 1957, one for every 24½ persons. And according to boating industry leaders, "we ain't seen nothin' yet!"

By WILLIAM W. CLARK
Eastern Editor

THOSE small boats that are dotting the coastal and lake waters of the United States in ever-increasing numbers represent an opportunity and a challenge to every nearby L.P. gas dealer.

The challenge lies in the responsibility which every LPG dealer should take to see that unsafe installations are not permitted.

The opportunity is a rare one. In this field perhaps more than in any other, LPG has undisputed superiority. Day after day it demonstrates its safety, dependability, speed and complete controllability. In use, it's a personal billboard, carrying the message of superiority for the boat owner to observe. This message can effectively persuade the boat owner to adopt this fuel for his own home beyond the mains.

This is the line of thinking that led Suburban Propane Gas Corp., Whippany, N. J., to take a plunge into the marine field. At the time there was no promise of quick profits to lure the company. Per-boat usage was insignificant. But Suburban saw a long-term opportunity awaiting here, and it stepped into

the picture with a bold, ambitious marketing program.

When the company made its move, a vacuum existed. LPG was already being used aboard boats, but the boat owner bought his gas where he could; he bought the system, changed the bottles, and presumably made his own inspections. It was a potentially hazardous situation.

Marinas hold the key

Throughout most of the country, privately owned craft are serviced at marinas, which are dockside service stations. Here the owner can tie up his boat, buy fuel and other supplies, and have repairs made. In some of the more elaborate ones, he can even buy dinner and lodgings for the night.

In the Suburban plan of operations, the marinas were the key element. If Suburban could make arrangements to work through these facilities, they could educate the operators, exercise supervisory control over installations, and at the same time build a sound new load.

First, it was necessary to design some standardized installation kits so that compliance with the safety code of the National Fire Protection Association (NFPA 302) at this stage would be automatic. Four types of cylinders were designated—a 5 lb and a 20 lb bottle and 20 and 42 lb horizontal cylinders. All four types can be provided as single- or dual-tank installations.

Regulator units were also made up in kit form, complete with wrench, pigtail, mounting bracket, a pressure gauge, and outlet adaptors for the fuel line to the appliance and for the overboard vent line. These kits are standard stock for both single- and dual-cylinder systems.

Lengths of copper tubing were also assembled into "packages," which contain a sufficient amount of seamless copper tubing in the proper sizes for the fuel line and the over-the-side vent.

The system is only half the story. The appliances in which the gas is used must be *absolutely* safe, and specified for LPG. To assure this, Suburban asked several of its major appliance suppliers to cooperate in building ranges specifically designed and constructed for use on boats. With the help of these manufacturers a completely new line was developed.

Under Suburban's direction, the marinas sell and install the appliances and the systems. They also supply the fuel through exchange setup, using Suburban cylinders which are carefully inspected by the company in compliance with the code. They make the necessary inspections and repairs.

Suburban provides guidance

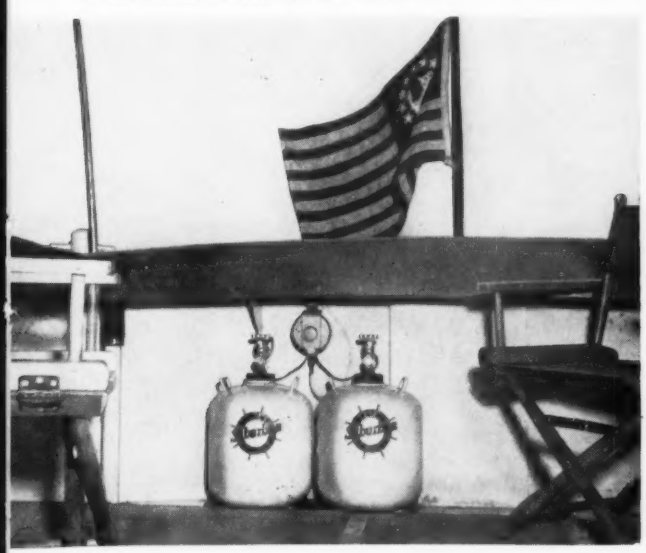
Suburban itself provides the guidance. Company field men instruct the marina operator until he is able to work on his own. A booklet has been prepared for his use. Included in it are passages from the code which are pertinent to his phase of the job. Standard procedures, which have been established by Suburban to simplify his work, are also set forth.

Placement of the cylinders is highly important, so the company has set up a list of recommended locations. Above-deck installation is always desirable, but the cylinder must be protected in any case. This can be done with a specially constructed housing; or an underseat or locker compartment can be used, if it is vented at the top and bottom.

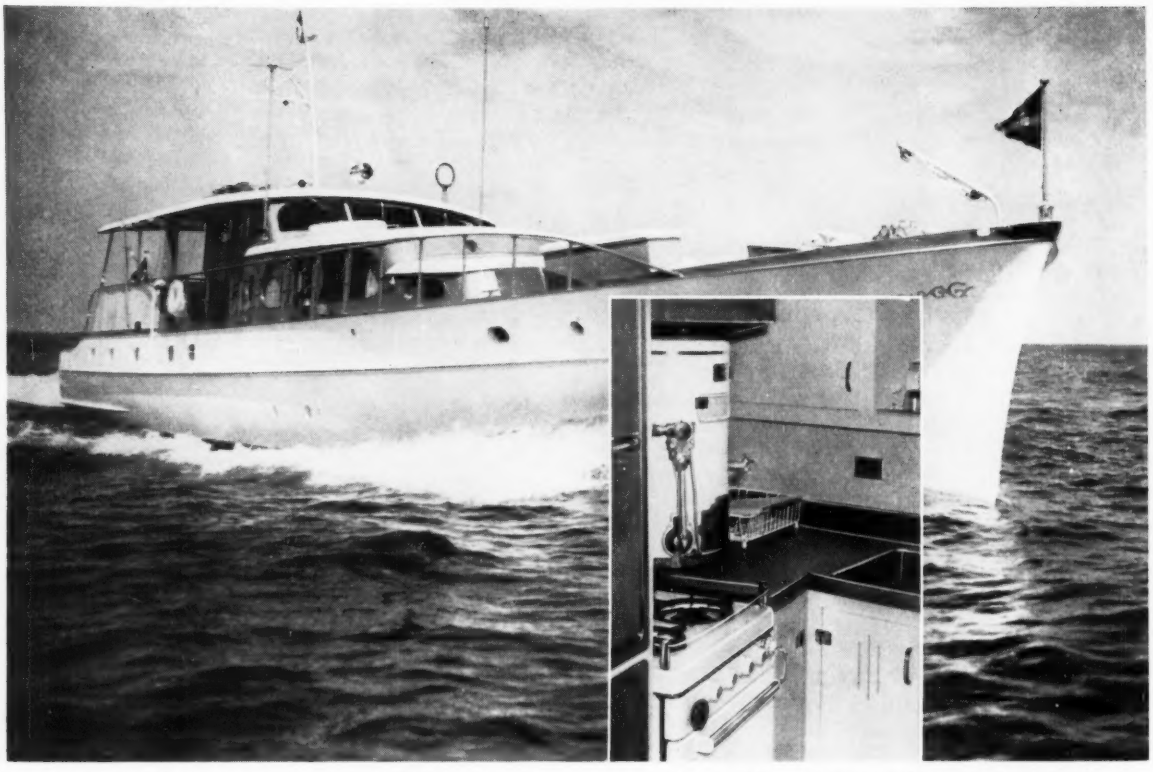
An alternate location below decks is the stern cockpit, where the cylinder and attachments may be placed in a metal lined locker similar to a fish box, with a tight-fitting cover. The sides and bottom of the locker are lined with sheet copper and a drain opening is provided at the bottom. This opening should be no less than ½ in. in diameter; through it the vent line is led overboard.

Bow locker installations are not recommended be-

Two 20 lb cylinders and the regulator are installed on the aft deck of this cruiser. A housing covers them.



Twin 42 lb horizontal cylinders lie under the bow seat on Edgar John's yacht "Welcome." The cover is removed.



The 73 ft cruiser Cruise Neval plows through Atlantic waters. The galley (insert) is complete with L. P. gas-fired water heater and range.

cause in most boats such lockers have openings into the interior of the hull.

Other instructions to marinas are covered in the code (see box which accompanies this article).

Suburban's interest and active participation in the marine market did not end with the marinas. LPG systems and appliances must go into the boats as original equipment, Suburban reasoned. They should also be installed in a sound, scientific manner. The best appliances must be specified. They must do credit to the fuel, and they must be safe and efficient.

So the company went to work on the boat builders up and down the Atlantic coast and sold them on specifying top-flight original equipment. They also persuaded many builders to adopt built-in ranges. Within the past two years, a handsome Caloric built-in has been installed in many small boat galleys.

Annually, Suburban Propane displays its wares at the National Motor Boat Show in New York City. This affair is held in the winter, and during the subsequent months the company's field sales organization keeps busy following up the leads which the exhibit produces.

The company now has franchised marinas all along the Atlantic seaboard handling fuel, equipment, and appliances, and making repairs and inspections. On the Pacific and Gulf Coasts, as well as in numerous inland lake areas, it maintains a cylinder exchange service with hundreds of other operators.

Providing a service

Suburban Marine Division was not developed with the idea of grabbing huge profits. Many boat owners (and some who were Suburban customers on land) wanted a uniform service with inter-changeable cylinders. Suburban met this challenge. Its bulk plants located on the Eastern Seaboard can easily service boating facilities providing a continual service which was non-existent before.

It has collateral advantages that are significant. By its performance it has won over a number of boat-owners to its advantages for domestic use. Because of their economic position, they present an attractive market in this respect. It constantly sells itself not only to the owner, but to his guests as well. It acquaints them with a fuel that, alas, all too few people are familiar with, even today.

The Suburban Propane program has turned a potential industry liability into an asset. Before the company stepped in, prices were unpredictable. Service was uneven. Fuel availability was chancy. Installations varied from good to frightful. Marine usage was in a very good position to give LPG a very black eye.

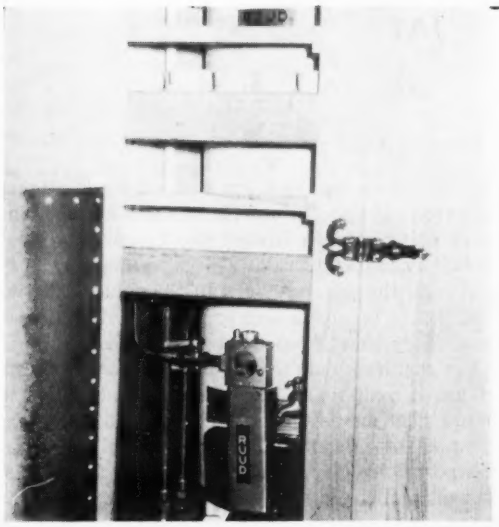
The company has changed all this. It set up a system of control where there was virtually none before. Suburban Propane has even gone so far as to sell its units to would-be dealers in areas not normally served by the company. In other words, in areas

All marine LPG installations are subject to U. S. Coast Guard inspection. Conformity to the code set down by NFPA bulletin No. 302, Fire Protection Standards for Motor Craft *will assure Coast Guard approval and a safe marine record for LPG. NFPA No. 302 is available from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. Single copy price is 50 cents.*

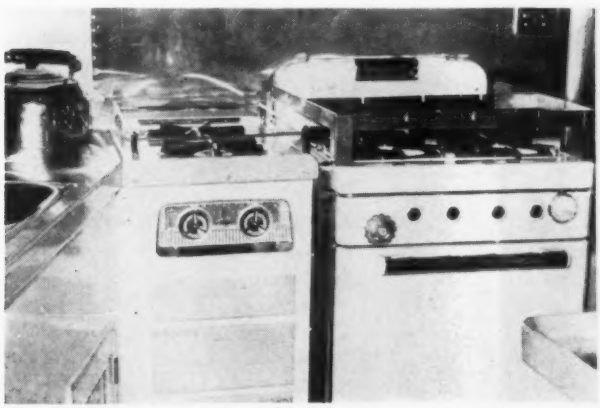
beyond the East Coast, it has laid the foundation for other L.P. gas distributors to give their customers and prospective customers the type of service which they want and deserve.

Suburban has drawn the pattern for a potentially profitable marine marketing program. The individual dealer may cut the cloth to fit his own situation. ■

An L. P. gas-fired hot plate supplies the tempting food prepared in this ship's galley.



The galley of the "Cecelia J" provides a good LPG load with its water heater (left) and its two ranges (below).



Revolution on the pork chop front

By CARL ABELL · Editor

Pig brooding with LPG heat brings five great advantages to pig raisers in the cold winter zone:

1. **Raises larger litters**
2. **Reduces brood sow requirements**
3. **Matures pigs at peak price period**
4. **Saves on total labor requirements**
5. **Moves work peaks out of planting and harvesting seasons.**

THE heating of farrowing houses with propane gas is the most important new development that has hit the hog raising business in many years. By making the time of birth of the new brood of pigs independent of the weather it has ironed out some of the worst handicaps with which the grower has been faced. From the standpoint of barnyard economics, it saves more than it costs, and then results in increased income. What could be sweeter?

This is big news for farmers. It is also big news for L. P. gas dealers. While its impact is greatest in the Corn Belt states, pig raising is big and weather-bound in many other states where, as Oley Olson says, "the winters are not so wigorous." Altogether, according to the Census Bureau, more than 360,000 farmers farrow 10 or more sows. The big herds run to several hundred, and in a few cases there are thousands.

While the pig brooder season is not so long as the house heating season, a hundred baby pigs will need more fuel than the farmer's family of five. Nearly all hog raisers grow their own feed, so the conversion of their tractors offers them an additional saving, enables them to get more value from their investment in the tank, and gives the LPG dealer a balanced load.

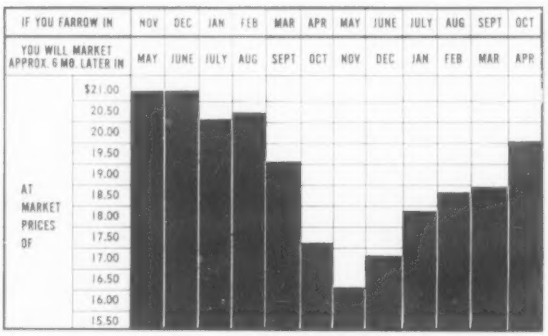
Hog market seasonal

Hog raisers at present suffer from a highly seasonal market. Prices are lowest in the fall, because this is the season when most of the spring-farrowed pigs are ready to sell. Somewhere between 200 and 240 lb the pig has reached the age of most economical production—the most meat per hundred pounds of feed. Holding them longer does not produce enough more meat to justify the extra feed.

The highest prices are paid from May through August. To bring pigs to the best marketable age during these months, they must be farrowed between November and February. Without heated farrowing houses, this is highly impractical because of the extra heavy mortality of the little pigs. They die from chilling and exposure, or they get crushed while crowding under their mothers for warmth.

With adequate heat and proper pen design, most of these losses can be avoided. Without heat, the hog raisers generally arrange for farrowing to take place in March, April and May. This not only matures the pigs when the market is glutted—the work connected with farrowing and marketing overlaps the planting and harvesting seasons, when the farmer's work schedule is most crowded even without taking time out to care for the pigs.

Purdue University scientists estimate that the average loss of baby pigs in Indiana, when farrowed at the normal season without heat, is 17 per cent. Other experiment stations have come up with similar figures. A survey by Capper's Farmer indicates that



the survival rate in the Corn Belt states is slightly above seven pigs per litter. Experience reports from farmers using modern heated pig brooding systems show survival rates averaging close to nine per litter, even though the pigs are born in the coldest months.

That points up something pretty important to hog raisers. They must keep enough brood sows to provide the required number of pigs for market, and these are a year-round expense for feed and care. With a higher survival rate, they can get along with less brood stock, and thus reduce this expense. It will go a long way toward paying for the heating equipment and the gas.

Farrowing and raising pigs is no different in principle than hatching and brooding chicks or turkey poults. They have similar requirements for heat, ventilation, food, drinking water and a dry, sanitary environment. Why it has taken farmers so long to find this out is one of the great mysteries of agriculture. No commercial poultry raiser would undertake to raise birds without providing this favorable environment, yet some of these same farmers will attempt to farrow baby pigs in zero weather without the protection offered by modern equipment.

Some of our experiment stations have been investigating the advantages of heated farrowing houses for several years. In most cases they have worked with electric heat lamps. They have found these to be both inefficient and expensive, but along with that discovery they have also established that the little pigs need both warmth and dry surroundings. Given these two conditions, more pigs live and the growth rate is more rapid.

Dry quarters appear to be even more important than warmth, and if both are provided there is little chance that their mothers will crush them. In damp, cold quarters the babies crowd under their mother for warmth when she stands up to eat and drink. When she lies down again, the pigs do not always get out of the way, and tragedy follows.

Positive ventilation is necessary in order to keep the farrowing quarters dry. Heat alone will not do it, but heat and proper ventilation provide the answer. This was established several years ago by Dr. Dean Simonsen, an L. P. gas dealer and farm owner of Quimby, Iowa, who was one of the pioneer experimenters with heated hog houses. He also found out, as was to be expected, that simple and inexpensive means of insulating the buildings paid off handsomely in insuring well distributed heat and reduced fuel bills.

Other interesting facts developed by the early investigators are that the ideal temperature inside the farrowing house is between 60 and 50° F, tapering down from the upper figure as the little pigs grow. Some of this heat is supplied by the animals, and only enough to provide the surplus requirement must come from the heating equipment. This presents no problems, as the total heat level is maintained automatically by the thermostatic control of the heaters.

In the Simonsen tests it was found that the ventilating fans should be run intermittently. In his installations this was handled by a time clock control set to operate the fan a predetermined number of minutes in each ten minute cycle. This is wired to the fan through a thermostat which cuts off the fan any time the temperature inside the house drops to 45°. By this means the house is provided with adequate ventilation but protected against chilling in case the outside temperature should become unusually low.

Cleaning out and replacing wet bedding in unheated and unventilated hog houses has been a major expense, and has consumed a great deal of time needed for other work during the planting season. The heating and ventilating system keeps the bedding dry, and several growers have stated that this results in a saving that more than offsets the cost of the fuel.

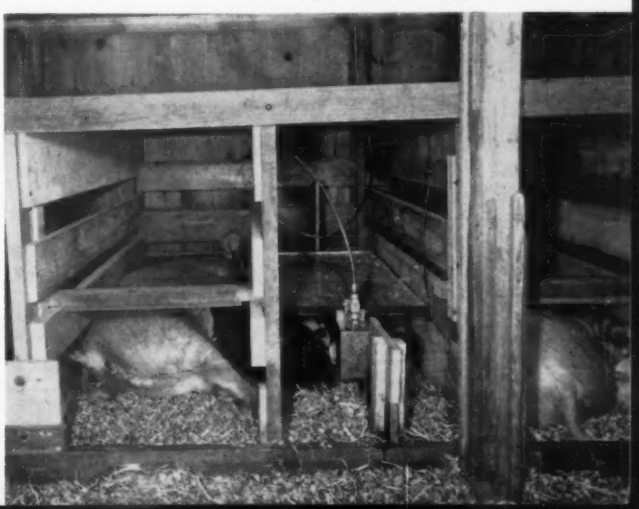
Farrowing houses

During the past year two types of specially designed farrowing house heaters have been placed on the market. The "Pig Blanket," produced by Johnson Gas Appliance Co., follows the same principle as the cold room brooders now widely used in the poultry industry. It provides a heated hover under which the little pigs spend most of their time. They are attracted under it by the warmth, and can move in and out freely. The mother is kept in a penned area alongside, so warm meals are available when needed. She can not get under the hover, and thus most of the losses due to crushing when she lies down are prevented.

The Century Engineering Corp. works on the theory that the entire farrowing house should be heated. Their heater is designed to provide circulating heat and positive ventilation. In appearance and operation it is much like the familiar suspended heaters which are widely used in business and industrial buildings. It is ceiling mounted, and is equipped with screens to prevent clogging the intake passages with air-borne debris.

Since this is a large heating unit, the fire box should be vented to outside atmosphere. The ideal installation should probably include duct work, but in many installations this is omitted, since the heater can nearly always be mounted with the exhaust fan

Radiant "Pig Blanket" small pens in farrowing house on an Iowa farm. Little pigs remain under the heater when not nursing. Courtesy Johnson Gas Appliance Co.

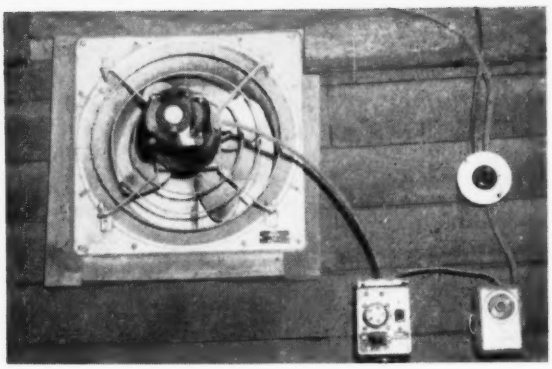


LEADING HOG PRODUCING STATES, 1957

State	Hogs Farrowed	State	Hogs Farrowed
Iowa	1,701,000	South Dakota	252,000
Illinois	930,000	Georgia	216,000
Indiana	595,000	North Carolina	181,000
Minnesota	548,000	Kentucky	163,000
Missouri	523,000	Tennessee	159,000
Ohio	359,000	Alabama	127,000
Nebraska	313,000	Kansas	115,000
Wisconsin	289,000	Texas	104,000
		Michigan	102,000

Courtesy Century Engineering Co.

Basement barn farrowing house at Bayard Scott farm near Vinton, Iowa. Mr. Scott checks thermostat controlling special suspended heater and ventilator.



Ventilating fan and controls used with conventional suspended heater in an early experiment. Lower right, clock control; next on left, thermostatic cut-out switch.

near and aimed directly at an opening which provides escape for the outgoing air.

While it is possible for the LPG dealer selling hog house heating systems to assemble his own equipment using commercially available heaters, fans and automatic controls, there are practical and merchandising disadvantages to this procedure. The special hog brooding systems are complete packaged outfits, which can be installed in minimum time, and which offer the further advantages of being designed specifically for this job. They have good talking points that are not to be had with the individually assembled systems. The manufacturers also provide effective sales promotion aids. Also, being finished and complete units, they make attractive displays for fairs, and they can be set up and demonstrated in the dealer's showroom.

In any case it is desirable to control the ventilation by stopping up cracks, windows and other openings that might admit an excess of cold air. For economy of heating, it is also advantageous to provide insulation for walls and ceiling. Double wall structure with tarred building paper to check drafts is relatively inexpensive, and a straw-loft overhead provides excellent ceiling insulation.

Most corn belt farms have barns that were formerly used to house horses and the necessary fodder. In most cases these can be converted into excellent heated farrowing houses at rather low expense. If there is no low ceilinged room in such a barn, it may be advisable to construct a ceiling at a convenient height so the heated area will be reduced and sources of heat loss will be held to a minimum.

Heating results

The proof of the pudding is always in the eating. What do some typical users say about the results they have obtained from heating their farrowing houses?

Levin Olson, a farmer living near Van Horne, Iowa, installed a 100,000 Btu overhead heater in a 24 by 28 ft farrowing house. This was built by Century Engineering Co., and installed by Newhall L-P Gas Co. It consumed 400 gal. of propane in a month. Mr. Olson reports, "The gas cost is no problem. It costs less to use than electric heat lamps, and the L. P. heater provides automatically regulated heat. More important, it keeps the hog house dry."

This installation was made late in the season. Two men installed it complete with controls and had it working in four hours. The owner also reports better than average survival, healthier pigs that grew faster, and lowered labor requirements for cleaning and replacing bedding.

Willard Eiler, of Stanwood, Iowa, reports on his use of the Johnson Gas Appliance Co.'s Pig Blanket. He installed these to take care of two litters per blanket for his herd of 33 sows. Cost was $70 per unit for the pig blanket and construction of the pens on both sides. He reports that his sows farrowed 361 pigs, of which 350 survived. (That is more than 10 pigs per sow, compared with a natural survival rate of slightly more than seven.) He also states that these units are cheaper to operate than electric heat lamps, and that they provide heat over a greater area.

The heat is radiated downward from the oil cells of the Pig Blanket. This keeps the little pigs' bedding dry. Mr. Eiler uses ground corn cobs for bedding, and it is now necessary to clean out and replace the bedding only every four days. The heat lamps formerly used had not kept the bedding dry, hence it was necessary to clean the pens more often.

Some of the earlier tests reported by Dr. Dean Simonsen give more detailed data on costs. All of these tests were conducted before the specially designed hog house heating systems were developed. Heating was done with suspended heaters of various makes, matching the size to the space in the house. Ventilating fans with timeclock and thermostatic controls, as described earlier in this article, were used in all tests.

Heating costs

On the farm of Robert Clark & Son, Cherokee, Iowa, Dr. Simonsen reports that two buildings were heated. One, an old uninsulated hog house 18 by 36 ft was equipped with a 55,000 Btu heater and a small fan for ventilation. The other, a part of the lower story of an old horse barn, area heated, 18 by 56 ft, had

double walls and a tight ceiling formed by the hay mow floor. It required a 75,000 Btu heater and a larger ventilating fan. Installation cost, including a rented propane tank, was $744.89.

Heating these two buildings for the entire farrowing season used 590 gal. of gas, costing $82.50. Of the 206 pigs farrowed, 195 survived. Cost of fuel per live pig was 42½ cents, with temperature —10° during the worst period.

Mr. Clark reports that he changed from the use of electric heat lamps because one of them got knocked on the floor and was crushed, which started a fire in the bedding. He also comments that the heat lamps only warmed spots on the floor, while the gas heater warms the entire building—a matter of some importance to anyone working there with the thermometer ten below.

Kay Stevenson, Quimby, Iowa, provides the following report on three farms which he operates:

Zupp Farm: Building #1, an old horse barn 36 by 36 ft, remodeled by covering the sides with building paper and corrugated steel. Ceiling installed and insulated with straw. Building #2, an old hog house 20 by 36 ft was remodeled using the same procedure. Cost of complete heating and ventilating equipment, including ductwork, controls, and purchase of 500 gal. propane tank, $1190. Fuel consumption during the first season, 534 gal., costing $69.42. Cost per pig for heat was 30½ cents for the 218 that lived to be weaned. In the small house, 78 pigs were born, and all survived.

Kay Stevenson's Home Farm: Hog house constructed by building a 20 ft shed around three sides of an old horse barn. Only the north wall is insulated, using paper and corrugated metal in addition to the wooden sheeting. The ceiling is insulated with 4 in. of Zonolite. Installed cost of heating system, including heater (100,000 Btu), ventilating fan, all controls, vent pipe and materials, and 1000 gal, propane tank, $895. Estimated fuel consumption, 500 gal., cost, $65. (His home is supplied from the same tank.) Altogether, 165 pigs were farrowed, of which 153 survived. Fuel cost per pig weaned, 43¼ cents.

Kay Stevenson, old hog house on rented farm: This building was so bad that it was not considered worth remodeling or repairing. To make it usable Stevenson put in a straw loft for overhead insulation, ran a snow fence around the sides and filled the space between it and the walls with used bedding. This stopped the floor drafts but did not close numerous cracks higher up. A 150,000 Btu heater was required for the 20 by 45 ft building, and there was so much "natural ventilation" that no fan was installed. A total of 111 pigs were farrowed in this house, of which 101 were weaned. But note that the heater was 50 per cent larger than would have been required in a well built and insulated building, and the cost per pig for fuel was 88¾ cents.

Costs more not to heat

All of these facts add up to one conclusion. All over the country farmers who do not provide heated farrowing houses are paying a higher price to do the job the harder and less profitable way. Let's look at the figures on market prices for the high and low price periods of a typical year, 1955. If the farmer sent his pigs to market in June instead of in December, he averaged $7.16 per cwt more. (USDA Statistical Bulletin No. 178). This adds up to $14.32 more for a 200 lb hog.

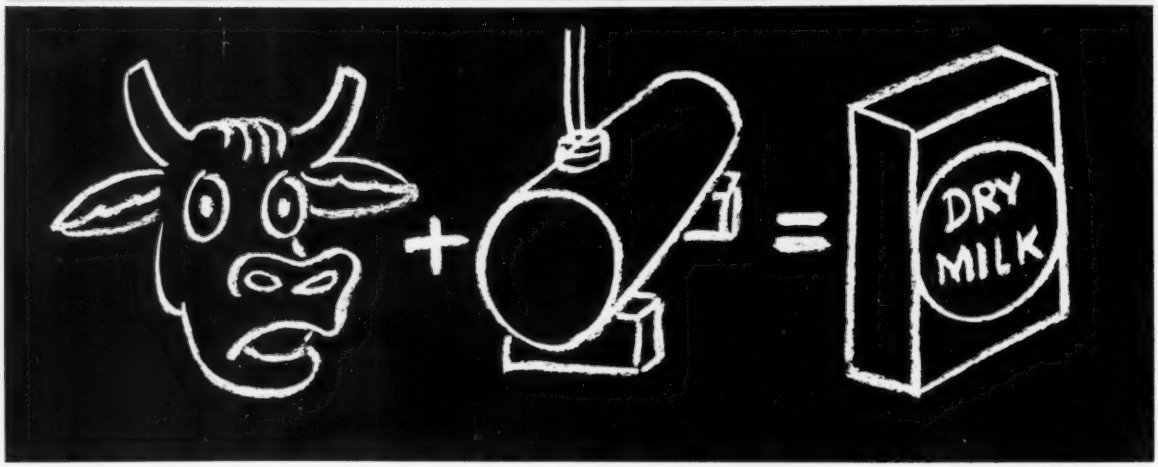
And how shall we figure the profit on the additional pigs raised per litter? It can be done either way—add the profit on the additional pigs if the farmer has the extra feed available, or save it on the year round feeding of the brood sows that are no longer needed to provide the number of pigs that the farmer can feed from his available supply. Any way you figure it, the profits are there from the birth control and higher survival insurance made possible with LPG heat.

PS. Now we come to something else. There is time enough in the year for each sow to have two litters of pigs, one in midwinter, and another in midsummer. Summer farrowed pigs catch the rising market during the spring months. The trouble is that both the survival and the growth rates are both low during hot weather. Experiments have shown that both can be improved by air conditioning the hog houses, and growth rate can thus be improved regardless of the age of the growing pig. This is of particular importance in the Southeastern states, where the production of corn and pigs is increasing rapidly.

Farrowing two litters per year would enable the hog raiser to cut his breeding stock in half, and with it, their feed bill would be cut in half.

Propane powered air conditioning systems might make such a program practical. (See article on commercial air conditioning in this issue.) This should be worth looking into, and it is quite likely that some of the State Agricultural Experiment Stations would cooperate if given the proper encouragement and help. ■

Used bedding confined behind snow fence stops drafts and provides insulation around an old "openwork" hog house used in an early test.



Propane powders Bossy's milk

By SELMA FINNEY

Milk dehydration is big business. Approximately 1½ billion lb of dry milk were produced in the United States last year, half for immediate use in this country and the other half for storage and export. Although four states—Wisconsin, Minnesota, California, and New York—have the biggest concentration of dry milk plants, plants are located in many other states across the nation. Most of the dehydration is still done with steam, giving LPG dealers a wide open field for conversion to L. P. gas. How good is LPG for milk dehydration? One of the biggest names in the dairy field—the Borden Co.—uses propane in at least two of its milk drying plants. And to use that company's own slogan: "If it's Borden's, it's got to be good."

A 15 to 20 per cent increase in production of powdered milk has resulted from converting the Hutchinson (Minn.) Creamery Association milk drying plant from steam to L. P. gas dehydration.

Although the conversion to LPG cost the plant $60,000, general manager E. C. Ditlevson emphasized: "On an operation of this size, where we can process nearly half a million pounds of liquid skimmed milk a day, a $60,000 change of equipment cost is not so important as the question 'How much does it increase production or quality?'"

Before LPG, skim milk was dried by spraying the liquid into boiler-generated steam. In this process, the fuel had to heat water to make steam and the steam did the actual drying. With LPG, direct-fired heat is used. The milk is sprayed directly into propane-heated air.

Needless to point out, the drying air must be completely clean when milk is sprayed into it. For this reason, fuel oil or any other liquid or solid fuel could hardly be used without contaminating the food product.

"Propane," reported plant superintendent Hugo

Saar, "is the perfect fuel for milk drying operations. It gives a clean, fast, hot flame, winding up the final drying operation in from 6 to 8 seconds."

The switch to direct-fired propane was made by the plant last year after 59 years of operation on steam generated by No. 6 fuel oil.

A 30,000 gal. McNamar LPG tank supplies the fuel through a Mitchell vaporizer. Cost of the tank installation alone was $10,000. LPG consumption: 1000 gal. daily.

Hutchinson Creamery Association dries 400,000 lb per day of liquid skim milk to 3500 lb of powdered milk in the following operation:

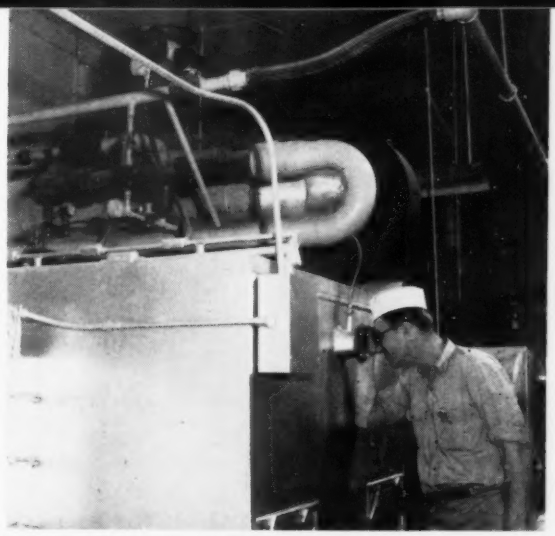
Liquid skimmed milk is piped to the drying plant from the creamery. When it reaches the drying plant it is cooled to 38° F and is placed in insulated stainless steel storage tanks. There are five of these storage tanks with a total capacity of 175,000 lb.

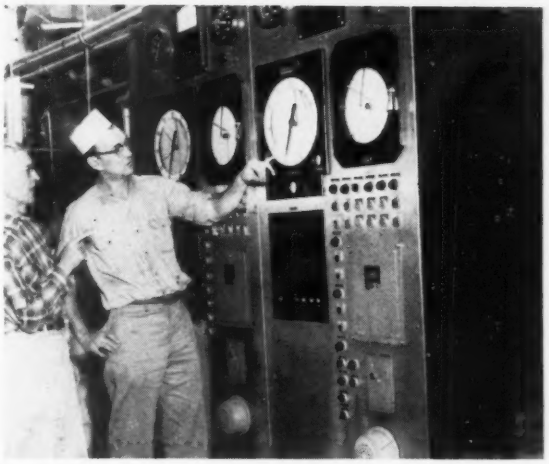
From the storage tanks the milk is next pumped into interstage heaters and evaporators where the milk is heated to 140° F. This heating is done by milk vapors which have a temperature running up to 195° F.

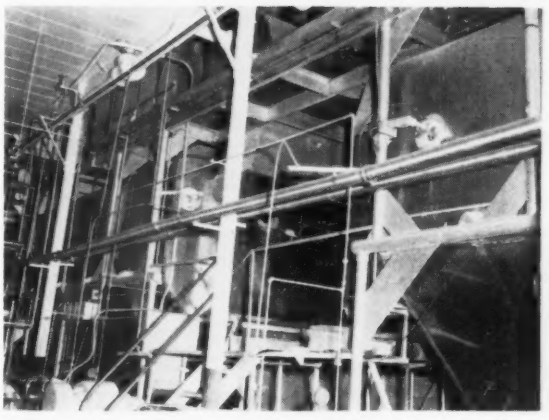
After being heated to 140° F, the dry milk goes into a steam jacket and into two hot wells (6000 lb each), where it is held for 20 minutes. The liquid skim milk next goes into an evaporator where it is concentrated to 42 to 44 per cent solids. It is then pumped into another preheater and the temperature is raised to 170° F. After this increase in temperature, the part solid-part liquid milk is pumped with high pressure pumps (called homogenizers) into the final drying chamber.

The 42 to 44 per cent solids milk comes into the final drying chamber through nozzles which spray it into propane-heated dry air, heated by direct-fire contact. Propane comes through a 1½ in. pipe at 15 lb pressure to a regulator at the burner which reduces the pressure to 1½ lb. At that pressure it goes into a Maxon burner located in each final drying chamber. The air is heated to 345° F. In 6 to 8 seconds the drying is completed and the milk is suspended as a fine powder in the air.

The powder is collected from the air by suction and drawn into pipe vents which lead to the bags. These 100 lb bags of powdered milk are taken to the plant's storage rooms where they are stored on pallets. The plant's storage capacity is 600,000 lb of dry milk—dried fast and clean by propane. ■





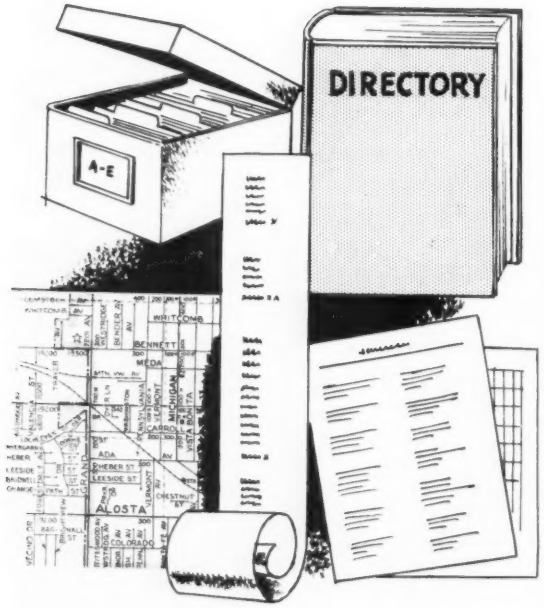


TOP, Hutchinson Creamery plant superintendent Hugo Saar looks through a viewer at the propane flame in one of the plant's milk dehydrators.

CENTER, general manager E. C. Ditlevson and Mr. Saar check automatic control regulators and recorders. Propane-heated air must be kept at 345° F.

ABOVE, a view of the final drying chambers in which milk is dehydrated by direct-fired propane-heated air.

LEFT, Hutchinson Creamery's 30,000 gal. LPG tank stands on the bank of the Crow river in Minnesota. Vaporizer is at the left, separated by wall from the tank and the pump building.



Part 7 of a Series

Market research and prospecting

By MARTIN A. BROWER • Associate Editor

MARKET PLANNING

COULD you increase your present sales of LPG appliances? How much more? Which appliances? Should you concentrate on present customers or on new ones? Are you concentrating sales in the right areas? Are you overlooking any good areas? How can you best increase sales? What about next year?

If you don't know the answers, you are either not doing a thorough selling job or the job you are doing is costing you too much.

How can you find the answers? Through market research. Hey, wait a minute! Don't let it scare you off. Sure market research can be complicated and the big corporations use it. But it doesn't have to be complicated. And the big corporations use it for one reason—it pays off. So why shouldn't you put it to use? No business is so small that it has to do without knowing the size and characteristics of the market it is trying to reach, how best to sell it, and what it will be like tomorrow.

What is market research?

Have you ever tried to find something in a completely dark room? It sure helps if you know exactly what part of the room it's in, what the object feels like, and where the furniture is located. If you don't really know the room before starting out, you might wander around in the dark for a long while and stub your toe a few times. Selling is the same way. It helps to know where the prospects are, how many there are, what they can and will buy, and how best to reach them. And anyone who plans on staying in business wants to know this

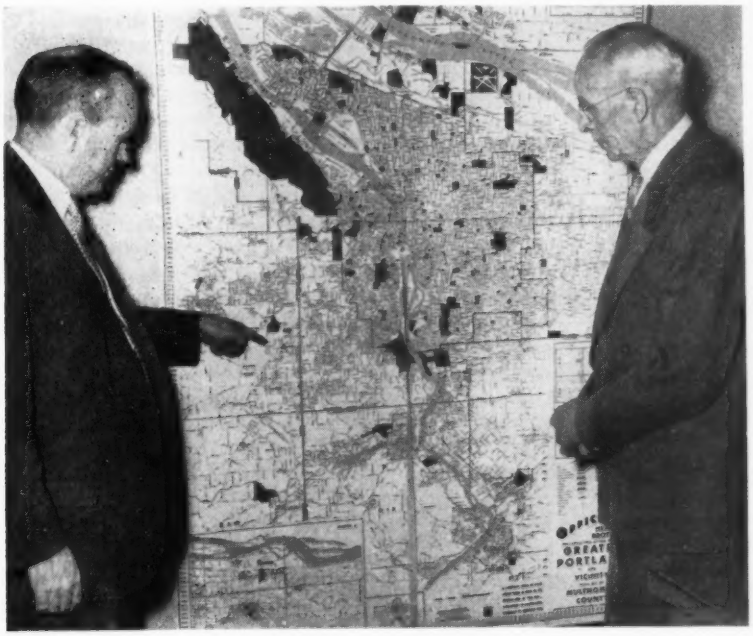
information as of now and also what the answers will be next year and the years after that.

Market research is a part of overall market planning. Market planning consists of three steps: (1) getting information about people who use or might use your products, (2) analyzing your findings, and (3) formulating plans based on those findings.

Why bother?

In today's tightening market, the hunch is giving way to the survey. As expert Fred DeArmond puts it: too much is at stake to settle for the expression "Why everybody knows that. . . ." Fewer and fewer LPG dealers today are willing to stake the future of their business on the rest of that old line.

Market planning helps keep operating and overhead costs at a minimum, helps hold customers in the face of competition, helps get as many new customers as possible, and helps predict market trends. Sales plans, including advertising and promotion themes, can be laid out on more solid ground when based on market research.



Pinpointing customers through market research can increase appliance sales while decreasing sales costs. And being prepared for market changes can keep the LPG dealer off of a limb.

What do you need to know?

Five types of information are needed for complete and effective market planning: the location of the market, the size of the market, the characteristics of the market, the trend of demand, and the effectiveness of your own and your competitors' efforts.

1. Location—Where should an LPG dealer in any particular area look for appliance customers? Should sales be concentrated only on present customers who already have LPG installations? Should effort be spent on new customers? What about the new housing subdivisions? Any chance of selling there? Would it be worthwhile to push out into the next county? How much chance is there for higher customer concentration in areas already served?

2. Size—What is the sales potential for each appliance? How many can you plan on selling? This will depend on the number of households without certain appliances or with appliances ready for replacement less the effects of competition and other limiting factors. It also depends on the ability of the prospects to buy. If they don't have enough money, they are not in the market. And it depends on the desire of the prospects to buy. The desire can be changed, of course, by advertising and salesmanship.

3. Characteristics—What are the prospects' buying motives? What are their habits, customs, education, and economic status? What about their ages? Answers to these questions will give clues as to what appliances and what type, style, and price of appliance will best go over.

4. Effectiveness—How have the prospects felt about your sales efforts so far? What do they want to know? How about the efforts of the other fuels? In short, how can the prospects be better reached than at present and faster than your competition?

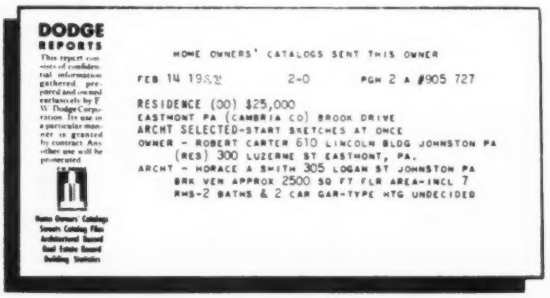
5. Trend—Even after you know the location, size, and characteristics of today's market, and the effectiveness of your own and competitor's efforts on it, what about tomorrow's market? Will it change? In which way? The LPG dealer who sells tomorrow's market with today's methods might well lose out. For example, many LPG dealers were caught asleep at the switch when they failed to realize the postwar trend to expensive ranges. While the electric boys sold their expensive models, LPG dealers were still

Market research and prospecting . . . A marketing survey can be one of the most enlightening and important things ever done

trying to push the inexpensive lines of gas ranges instead of pulling in the money on the CP models. What will your customers want tomorrow? Who will your customers be? Where will they be? Market research will tell. Will you share in the big boom expected in the 1960's?

How can you find out?

Gathering the data needed for effective market planning involves market research. Research is a word that usually scares off small, medium, and


DODGE REPORTS

HOME OWNERS' CATALOGS SENT THIS OWNER

FEB 14 19[illegible] 2-0 PGH 2 A #905 727

RESIDENCE (00) $25,000
EASTMONT PA (CAMBRIA CO) BROOK DRIVE
ARCHT SELECTED-START SKETCHES AT ONCE
OWNER - ROBERT CARTER 610 LINCOLN BLDG JOHNSTON PA
(RES) 300 LUZERNE ST EASTMONT, PA.
ARCHT - HORACE A SMITH 305 LOGAN ST JOHNSTON PA
BRK VEN APPROX 2500 SQ FT FLR AREA-INCL 7
RMS-2 BATHS & 2 CAR GAR-TYPE HTG UNDECIDED

Construction reports are available for almost every geographical area in the United States. Note the valuable information on the one above. It is available in the 37 states east of the Rockies.

even most large LPG dealers. But all it means is checking to find out. Market research can be conducted using primary sources or secondary sources.

Primary sources of information include the company's own records, the salesmen, and the consumers themselves. The usefulness of company records will depend of course on the type of records kept. Past sales records will show location of the customer and amount and type of appliances purchased. They might also show why the appliances were bought, how the customer was secured, the customer's economic situation, etc.

Use of consumers for market research usually means making a marketing survey. If properly made, a marketing survey can be one of the most enlightening and important things you have ever done. In making the survey, the information wanted should be thought out and the questions framed to get accurate answers in the simplest possible way.

Mailing the survey questions to present customers or to prospects is the least expensive method, but replies to a mail questionnaire are low unless a reward of some type is offered. Telephoning is fast, but the questioner must be brief and this slants the survey to those with telephones and so higher incomes. A personal survey is most costly but most effective. It gives complete control over the answers. Such a survey can be made easiest and at least expense by using housewives or high school or college students. Using delivery or service men is expensive, except where the survey is in the form of a complete service check.

Almost every library and book store will have several excellent books on how to conduct a survey from framing the questions through choosing the sample to conducting the actual survey.

Depending on the amount of advertising you do and the facilities available, the newspaper or radio station with which you do business might be induced to make the consumer survey for you, especially if advertising effectiveness or themes is involved. This might at least be worked out on a cooperative financial basis.

Secondary sources of market data consist of data gathered by some other group. Included are your local and state chambers of commerce, your local and national LPG associations, trade publications, libraries, other business firms in your area and elsewhere, reference bureaus, private research organizations, schools and colleges, and of course the many state and federal government sources.

Much of the information an LPG dealer might want to collect may already have been collected by one of the above organizations. If the dealer has a college in the area, he might interest a marketing class in making a survey for him as a project under supervision of the professor.

A total of 133 items of information on each of the 3105 counties in the US is available in the County and City Data Book published by the federal government. (See Trade Literature section in February 1958 BPN, page 74.)

In any event, the first step in gathering market data is to define the problem—what is it you want to know? The next step is then to determine the best method of securing that information.

A simple method of determining themes and points to include in appliance selling is to check back with recent appliance purchasers. Ask them why they bought. If certain reasons come up over and over, such as speed in clothes drying or safety from boil-overs due to the "burner with a brain" in the case of a range, these are obviously points that will help sell others. And checking back with recent buyers creates goodwill and continues your contact with them.

CUSTOMER PROSPECTING

So you have the salesmen all trained, equipped and raring to go. You know where your market is, who makes it up, and what they will buy. You even know what approaches to use. But you can't sell to markets as a whole. How do you find the individual prospects?

Naturally, the salesmen can go door-to-door. And often, such is necessary. But the salesmen's time can be spent much more efficiently if they can call by appointment on pre-selected prospects.

Here are an even dozen ways of digging up prospects for salesmen:

1. Your own past records will (or should) show which appliances each customer has and how old they are. This will tell whether it is time for replacement. The records will also show which appliance your customers do not have. Already sold on LPG, they should be prime targets for additional appliances.

2. Where the city or country requires an installation permit, past city and county installation records will show which appliances are ready for replacement. This will be especially true for heating and possibly water heating.

3. "Using the User" is proving successful in LPG dealerships around the nation. Some call it their Customer Booster Clubs. Whatever the name, present customers are given prizes of gas, merchandise, or cash for turning in names of prospects or for every prospect they turn in who actually buys.

4. Make every employee a selling employee. Every employee does not actually close sales, but every employee should be made sales conscious and should turn in sales leads for salesman follow up. This is usually accomplished by holding a couple of training sessions for the entire staff, then providing them with prospective customer cards to be filled out and turned in. Many dealers cut all employees in on the regular merchandise incentive plan, awarding a certain number of points for each type of appliance tip that results in a sale. Other dealers offer cash bonuses which result in employees actually scouting around on their days off. Delivery and service men have an especially good chance of turning in tips.

5. Modernization and new construction reports supply leads which will probably result in competition from other fuels. These reports are issued by several organizations who make a regular job of it. Names of organizations serving your area might be secured through contractors.

6. Building permits issued in your city or county should be checked regularly at the city hall or county building. These show all planned new construction.

7. The "survey" is an excellent means of finding out the appliance needs of all present customers. And it is a good means for building goodwill. In use by several dealerships, salesmen or servicemen call on each customer in order to survey or check her gas appliances. Any adjustments required in burners or controls are made either then or later, but a survey sheet is filled out showing which appliances are missing and which should be replaced.

8. Keeping contact with building contractors or other contractors catering to the building trade will let you know in advance what new construction is being planned. Contacts with moving companies will let you know about new residents moving into your marketing area.

9. Observation by salesmen and the entire staff, especially drivers who are always on the road, can turn up leads as to new construction, new families moving into the neighborhood, and residents without LPG tank or cylinders who live next door to LPG customers. When asked recently how he finds prospects, Walter Kraus, Bay Heat, North Bend, Ore., replied: "I can *see* who doesn't have an LPG tank. Everyone without LPG is a potential customer." Does it work? Mr. Kraus is setting and meeting a personal goal of one new *commercial* customer each day.

10. Advertising is primarily to do a pre-selling job. It can, however, be used to attract prospects through coupons in newspapers, offers on the radio, or return post cards in direct mail. Advertising will be discussed more fully in part eight of this series.

11. Sales promotion is one of the best means of turning up really hot prospects. This is accomplished through offers, open houses, fairs and displays, and contests. Part eight of this series will cover sales promotion.

12. A good many prospects are lost after one call. The salesman decides to call back in the future but never gets around to it. A "tickler" file will help remind salesmen to return and it is almost as good as a fresh lead. Prospect notices which come back from the salesmen with the remark, "not ready to buy, try again in so many months," are filed so that they will be pulled out after that many months. They are then sent back to the salesmen.

All of these methods will turn up sales leads. But prospecting for customers is like prospecting for gold. In gold mining, after making a strike it is still necessary to mine the gold before it is worth money. In sales, after turning up a prospect it is still necessary to convert her into a customer before she is worth money. ■

Questions for study and discussion

1. By what percentage could you economically increase your sales of each appliance this year?
2. Are you overlooking any appliances or models which would sell well in your marketing area?
3. Are you concentrating your sales effort on the right customers?
4. Are you concentrating your sales efforts in the right areas?
5. Are you overlooking any types of customers or geographical areas?
6. How effective are your present sales efforts? Which are best? Which could be discarded or improved?
7. What are the best ways you could increase appliance sales?
8. Will all of your answers to the above be true next year? How about in five years?
9. Which of the 12 methods for getting prospects, mentioned in this article, are you using? Which ones could you use?

Don't overlook drive-in heaters, poultry burners, fly flamers, and pest controllers

Propane deals death to flies

FLIES are not getting along so well at some of the egg farms in Orange County, Calif., since a propane burning device has been developed for the cremation of their larvae in the droppings.

The feather-burning machine illustrated herewith has been equipped with scraper blades ahead of the side booms to level and break up the piles so the flame can penetrate. This not only kills the fly eggs, maggots and pupae, but also tends to dry the manure, thus making it less habitable.

Tests over a 30-day period at the worst time of the year indicate a kill of about 80 per cent for each flaming. Before burning, a count showed 5000 larvae and pupae for each cubic foot of manure, 1000 after the first flaming, and only 200 following the second flaming, which was done immediately. Burning was done every day during the 30-day test period. Cost of fuel for the test, covering the entire 7000 bird laying plant, was $14.

The machine and method were developed cooperatively by Jack Shinn of the Eimers & Shinn poultry ranch, Borgeson's Welding Shop in Santa Ana, and University of California's extension service. It can be used in connection with the standard types of individual cage laying houses. Greatest fuel consumption will be in the summer months. ■

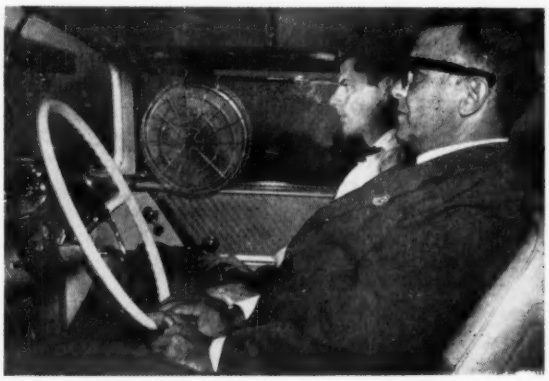
New LPG heaters warm autos at drive-in movie theaters

FOR drive-in theater operators in the colder climes, winter has traditionally meant five months of profitless operation. Those few who several years ago turned to electric in-car heaters as a means of stretching out the season found them a mixed blessing if at all. High installation, maintenance, and operating costs were draining off the top of their profits.

Now, a new method of heating car interiors has made its debut, and it promises to eliminate all of these bugaboos. The fuel? Propane.

The first installation of the Bernz-O-Matic LPG heaters was made last fall at the Starlite Drive-In Theater in Oak Lawn, a Chicago suburb. More recently, they were adopted by the large Walter Reade chain at its Woodbridge (N. J.) theater, a company which pioneered in the use of electric heaters.

The Reade chain had never gone 100 per cent for the electric models. Many of its theaters were still closing for the winter. The company was getting all



ready to button down Woodbridge last November when their executives spotted the propane models on exhibit at the Theater Owners of America Convention in Miami. This brought a quick change in plans.

"Our people were so impressed with the heaters that they decided to make an immediate installation at Woodbridge and keep it open for the winter," says a Walter Reade executive.

"Its chief attraction for us was its greater heating ability (compared with electric heaters) and its minor maintenance. To date we are quite satisfied with the efficiency of these units."

The units are simply constructed, and compact. The heater itself is a circular case 12 in. in diameter, about the size of an ordinary domestic electric fan. Attached to it is a small bottle of propane which supplies enough fuel for five to six hours of operation at a heat output of 2600 Btu per hour.

When not in use, the units are stored in an insulated building. As the automobile enters the theater, an attendant clips the heater, already turned on, to the top of one of the car's windows, in much the same manner as the speaker is mounted. As the patron leaves, the heater is picked up and returned to storage.

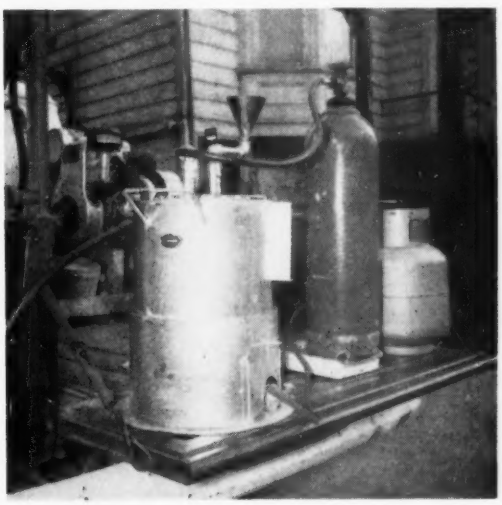
Refilling is done on the site from a bulk tank.

The low first cost, small fuel bills, and freedom from maintenance give these heaters a big edge over the electric competition. The experiences the Reade chain has had with resistance heaters bears this out. ■

Widespread market in pest control

PARAMOUNT PEST CONTROL CO., operating over most of California, Oregon and Washington, reports excellent results with a new fumigant vaporizer designed by Ransome Co. for use with propane.

Pest control people need a small portable fumigant heater that can be carried in a pick-up and easily handled by one man. They use these to vaporize methyl bromide, most widely used fumigant for killing insect pests in homes, barns, boxcars, grain mills, warehouses, creameries and on orchard trees. Heat causes quick vaporization, which is necessary in cold weather and advantageous at any time. Hot vapor has better penetration and gives better immediate and residual results, also shortens time required for the job.



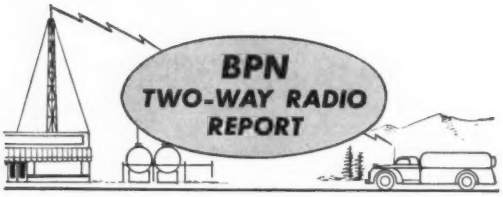
Most present vaporizers use alcohol or kerosene—are cumbersome, expensive, and slow. They can be converted to propane, which helps the operation but is not ideal. The new high-efficiency vaporizer designed for use with propane is lighter, less expensive, and faster. It is suitable for use on jobs requiring up to 250,000 cu ft of fumigant vapor. This is adequate for the great majority of jobs. ■

Poultry incinerator fired by LPG

DEAD poultry has long caused a problem on poultry farms around the nation. Burial is time and space consuming. Burning in an oil drum or usual incinerator is smokey and smelly.

Manchester Tank & Equipment Co. has designed its Volcano L. P. gas incinerator with an eye toward clearing up the dead poultry problem. It uses a high-velocity, high-temperature LPG flame to destroy 10 to 15 chickens in less than one hour. The LPG flame reduces the poultry to a small pile of ashes with no odors and no smoke.

Already in use, the incinerator has met with a big reception from farmers, according to Petrolane Gas Service Inc., western LPG marketers. ■



RADIO-USER SURVEY

Dealers with radio saving .44 cents/gal. over average delivery cost of all dealers

THE average bulk L. P. gas dealer with two-way radio equipment is saving $4400 per million gal. of LPG delivered compared with the average of all bulk L. P. gas dealers.

And this does not include savings from reduced overtime, telephone bills, service truck mileage, credit losses, and the cost of buying one or more additional trucks.

A saving of almost one-half cent per gal., the $4400 per million gal. figure showed up in the just-completed BUTANE-PROPANE *News* Two-Way Radio Survey. The survey, a joint effort of the BPN research and editorial departments, was made of L. P. gas dealers across the nation who were known to have two-way radio equipment in operation. Returns included many sizes of dealers in varied parts of the nation using several makes of radio.

Average gallons of bulk LPG per mile delivered by dealers with two-way radio is 31.5, compared with

By MARTIN A. BROWER

Associate Editor

Results and Conclusions from BPN Two-Way Radio Survey

Surveyed: L. P. gas dealers known to have two-way radio in operation.
Average gal. of bulk LPG delivered per mile by dealers surveyed: 31.5
Average gal. of bulk LPG delivered per mile by all LPG dealers: 20.0*

Additional gal. per mile delivered by dealers with radio: 11.5
Average delivery cost per bulk gal. for all LPG dealers: 1.20 cents**
Average delivery cost per bulk gal. with two-way radio: 0.76 cents

Savings in delivery cost per gal. by dealers with radio: 0.44 cents
Saving per million gal. of bulk LPG delivered: $4400
Average increase of bulk gal. delivered per mile reported by dealers since installation of two-way radio: 20 per cent***
Average number of vehicles equipped with two-way radio: 7.7
Average number of base (plant broadcasting) stations: 1.5
Average dollar investment in two-way radio equipment: $6468.75
Average number of gal. that would have to be delivered to pay off investment using .44 cents per gal. saving: 1.5 million gal.
Percentage of dealers with radio planning on adding more units: 60
Average number of additional units contemplated: 3.2

* BPN 1956 Transportation Survey
** Based on average cost per mile for bulk truck and driver of 24 cents.
*** See accompanying article

20 gal. per mile spotlighted as average in BPN's 1956 Transportation Survey of all dealers. This is an additional 11.5 gal. per mile and would make the cost per gallon of LPG delivered with two-way radio .76 cents, against 1.2 cents in the survey of all dealers. The saving is .44 cents per gal., figured on an average cost per mile for bulk truck and driver of 24 cents as calculated from the 1956 survey. This cost is probably higher today and so would show an even greater saving in favor of two-way radio.

The increased gallons per mile delivered through use of two-way radio as calculated from the radio survey allows two trucks and drivers with radio to do the same job as three trucks and drivers without radio.

Based on the 4612.2 million gal. of LPG delivered last year by LPG dealers (1957 Phillips Report), if every L. P. gas dealer in the nation had two-way radio equipment the industry-wide saving during 1957 would have totalled $20,293,680.

Radio-equipped dealers estimated for themselves a 20 per cent increase in gallons delivered per mile since installation of radio equipment. While this is lower than the more-than 50 per cent increase shown by these dealers as compared with the all-dealer average, it is reasonable to assume that the dealers who now have two-way radio ordered the equipment in the first place because they were more cost conscious than the average. As such, they were probably doing a more careful routing and scheduling job even before two-way radio.

But even if a dealer saved only .25 cents per gal. on delivery by using two-way radio, this would result in a saving of $2500 per million gal. It would allow five trucks and drivers do the job of six.

Equipment and cost

L. P. gas dealers surveyed have an average of 7.7 vehicles equipped with two-way radio sets. The high was 20 vehicles, the low was 2. There are, of course, numerous dealers with fleets of radio-equipped vehicles far in excess of 20 and BPN has heard from one dealer who is highly pleased with his one radio-equipped truck which he drives while his wife broadcasts from the plant.

Dealers reported an average of 1.5 base (plant broadcasting) stations. Most dealers have only one base station, but many had two and three and the high in this survey was four.

Average investment in two-way radio equipment is $6468.75. The high reported was $20,000 and the low was $2,000. The number of vehicles equipped did not have a direct bearing on the investment, leading to the conclusion that many dealers have invested in more costly equipment than others.

Using only the $4400 per million gal. delivered figure as the amount saved through investment in radio equipment, the average radio installation would pay for itself after 1.5 million gal. are delivered, then return a handsome saving after that. Actually, when the other savings are combined with cost of delivery, the pay-off would be even faster.

If the smaller figure of $2500 per million gal. is used, the equipment would pay for itself after delivery of 2.6 million gal. Here again the other savings would make it even sooner.

Sixty per cent of the dealers surveyed plan on adding additional two-way units, the other 40 per cent having already completed their requirements. Only one dealer of all responding stated that he does not intend to add more units because he is dissatisfied with his radio equipment. And his complaint was poor reception.

Of those who plan on adding units, the average number to be added is 3.2.

Victor Miller, driver-salesman for Pat Griffin Co., Fort Collins, Colo., LPG dealer, uses one of the company's six two-way radio-equipped units to answer a call from the office.

Cylinder delivery

Twenty-six per cent of the dealers surveyed reported no cylinder delivery at all. Of the remaining dealers, only a handful knew how many gallons per mile they are delivering. But there is every reason to believe that the same relative savings that are found in use of radio with bulk trucks will be found in radio-equipped cylinder delivery trucks. The actual dollar saving would be less, of course, since the cost per mile of operating a cylinder truck is less than for a bulk unit.

Cost per mile for a cylinder truck and driver in the 1956 Transportation Survey was 17.4 cents.

Comments from users

Almost every L. P. gas dealer surveyed went out of his way to add extra comments to the ques-

tionnaire as to how much his company favored two-way radio. Only three negative comments were received, but two of these dealers stated that they wouldn't do without their radio equipment despite the unfavorable aspects they pinpointed. In two cases, the negative comments concerned poor reception and one of these was quite irate about the quality of his reception.

On the other hand, many dealers actually bubbled over in their favorable comments, some underlining the advantages listed, some adding exclamation marks. Many of the comments could be summed up by the remarks of a Texas dealer: "I wouldn't do without two-way radio."

Several dealers mentioned that use of radio has done away with the need of one or more extra trucks, saving on both capital expenditure and operating costs. One stated "four trucks do the job of five." A Mississippi dealer volunteered that radio saves him one truck and driver. "We believe three trucks radio-equipped can do the job of four without," was the way a Florida dealer put it. Another dealer answered that "we are doing with one less truck. Two-way radio is worth a fortune."

But increased gallonage per mile is only one benefit named. Better service to customers on out of gas calls and service complaints was frequently mentioned. A Texas dealer summed this up with the statement: "Better, faster, more economical service."

Reduced telephone bills came in for a good deal of comment. Most dealers without radio have drivers telephone into the office periodically for any emergency instructions. These are usually toll calls and run up the telephone bill. There is no need for any telephone calls with radio and even the time of telephoning is saved. One dealer reported that the monthly saving on the telephone bill pays for the monthly service contract on all of the radio equipment. "I just like the idea of being able to talk to any driver or serviceman at any time" was the way another dealer put it. An interesting point by a third dealer was that he now has better relations with his truck drivers. They feel that they are a team.

Other comments included reduction in overtime since deliveries are now completed faster and there is less frequent need to send a man on an extra trip or out of his way in emergencies. "I like the satisfaction of knowing where my trucks are and that they can get back by quitting time" wrote one dealer.

Here are some of the other comments: "Delivery and service men can ask for help when in trouble. Saves doubling back on same route." "Saves two to three hours per day," commented a New Mexico dealer, adding that, "routing is 100 per cent easier."

An Oklahoma dealer likes the "better service at less cost per mile." Another operator gets closer coordination of his entire delivery operation.

Still other remarks include "Helps in making collections." "Fewer trips." "Less capital outlay for more trucks, less overtime, lower telephone bill." And an Arkansas dealer stated, "We would need 25 per cent more vehicles to serve our widespread territory if not for radio."

The negative comment that did not pertain to reception told of delivering fewer gallons of LPG per mile since installation of radio than before. The dealer reports customers are taking advantage of his ability to speed deliveries in that they are purchasing fewer gallons at a time. Before radio, it would take a day or two to answer a customer's gas call. Now the call can be handled in hours or less. Where the average dump was 163 gal. per customer, the dump is now 68 gal.

Customer education on how two-way radio will help them is important from the start. Many dealers advertise the fact that they have radio by using regular advertising channels and the sides of their trucks in order to build customer confidence. But overconfidence must apparently be avoided.

Two-way radio is best used as a tool of regular routing and scheduling, not as a substitute. Used properly, it can be one of the most important tools an L. P. gas dealership has.

A survey reply from one Florida dealer shows how important he believes two-way radio to be. He has radio equipment on every one of his trucks and cars and plans to add new units to any new vehicles he purchases in the future. The dealer reports: "We consider radio the largest return in profit per dollar of any investment we have made." ■

Two of the eight mobile two-way radios owned by Bakern Liquid Gas Co., Bakersfield, Calif., are installed in service trucks. Bakern's antenna is in the background.

Let's end government financed competition

The first step . . .

WIPE OUT THE REA

By WILLIAM W. CLARK • Eastern Editor

A power line brings electricity to a Texas farm.

USDA photograph

PART TWO

THE REA had its start in 1935 as an "emergency" agency. In its inception, it was just another of a number of agencies which together comprised the famed "alphabet soup" of the early New Deal days. Its purpose: To prime the pump. In fact, in its original form (as an arm of the Reconstruction Finance Corp.) it was intended as a means for helping existing electric utilities expand into rural, uneconomic areas. It is recorded in REA annals that, among the existing electric companies, there were few takers.

A few months later, the original theory of pump priming had given way to one of true rural electrification, and by statute, it was established as a regular agency. Its life, however, was limited to 10 years.

REA went to work with a will. By the time World War II started, it had made loans totaling some $370 million, and it was on its way.

In 1942, the National Rural Electric Cooperative Association (NRECA) was born, and through the years that followed, it gave the co-ops a powerful voice in the nation's capital. With this high-potency lobby at work, coupled with the ever-increasing wooing of the farm vote, the REA continued to grow in operations and stature. New statutes were hatched, giving it a permanence grounded in law, and—in 1948—pegging the ceiling on loans to borrowers at 2 per cent. Slowly, the agency underwent a metamorphosis. No longer was it an instrument for priming the pump. Nor was it simply a means of electrifying the nation's farms. It was, above all, a banker, and one that seemed to take a peculiarly paternalistic interest in the future welfare of its clients.

Empire building

The lengths to which this paternalism carried the REA smack of bureaucratic empire building. Your banker and mine doesn't ordinarily employ a staff of experts to show us how to run our businesses. He doesn't set up our books for us, give us advice on technical problems, do market surveys for us, or show us how to go out and get new business. But the REA does. It retains a corps of some 40 to 45 operations field representatives throughout the U. S., who tour the hinterlands giving management

and technical advice. A second staff, similar in number, consists of field engineers, who do system planning and offer other advice.

These staffs are actually "line" groups, and they are backed by staff people. Five area offices have been established for this purpose, and among their personnel are accountants, engineers, clerical help, loan administrators, and other "helpful" types. Then there is the Washington staff to direct the overall operations nationwide.

As a loan agency, the REA is ever the watchdog. To protect its existing loans, it encourages the borrowers to build load. Electric ranges and clothes dryers—both high-use appliances—for example. Water heating, too. New farming uses. This means re-wiring, new appliances to be financed.

Area coverage and farm electrification *per se* are now old hat. As long ago as 1950, the REA administrator, Claude R. Wickard, reported that 86.3 per cent of all farms in the United States were electrified. Less than 800,000 remained to be electrified at that time.

Four years later, the coverage had crept upward to 92.3 per cent. Hadn't the REA reached its goal of rural electrification? The Hoover Commission, in its March, 1955, report on lending agencies, felt that it had. Aside from new demands made by normal population increases—offset by the trend away from the farm—there were precious few farms left to be put on the lines.

Loan funds high

On the other hand, while the total amounts of loan funds advanced annually have decreased somewhat from the peaks of a decade ago, they continue at high levels. In 1953, the loan figure showed a drop to $137,380,000 for the year. But in 1954, the aggregate of loans advanced to $167 million. The following year, the total was approximately the same. And in 1957, according to Administrator David A. Hamil, some $300.5 million was loaned.

Is this the sort of record that would give rise to any hopes that the end is in sight?

The swing is very definitely toward greater per-user consumption. Administrator Hamil reports that "about 68 per cent of the $300.5 million REA loaned in the electric business during fiscal 1955 will be used for system improvements and to provide additional power."

Study a few recent loan approvals, and you'll see the pattern growing clearer. Here's one for $373,000 to finance the construction of 35 miles of distribution line to serve 150 new rural customers, and system improvements. The improvements will include 39 miles of tie line, increased capacity of 100 existing consumer services, and conversion of 141 miles of existing line to provide better electric service in the area."

Here's another, in Utah, which includes construction of 61 miles of line to serve 85 new rural customers, "including 74 irrigation pumps." (Another fine load that LPG could handle just as well—or better!)

So the emphasis changes, from electrification to load building. Rewiring is required, on a large-scale basis. New appliances and equipment are sold, and the cost to the farmer is tremendous. More than $10,000 can be tied up in the farmer's* electrical equipment, according to REA's own figures. And in the last few weeks the majority of loans approved include items for installation of plumbing equipment.

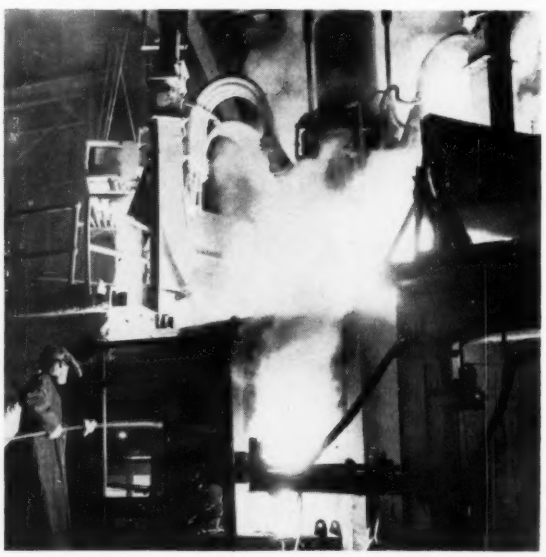
Where does the money to finance this expansion come from? From good old Uncle Sam, who loans money at 2 per cent to co-ops for the purpose of re-loaning to the farmer himself. At 2 per cent? Well, that's up to the co-op. It can charge what it pleases. If the co-op wants to make some money on the installation, it can hike the charges to a figure approximating those of a financial institution. Or, if it has a competitive situation to battle, it can charge as little as the 2 per cent it paid for the money.

Most co-ops do not sell appliances outright. In fact, the REA advises them not to, as a matter of good public relations. However, the co-op can—and ordinarily does—carry the paper for the appliance dealer. This, of course, gives the co-op an extra advantage over the L. P. gas dealer, who could not hope to match its terms.

Consumption way up

What has been the net result of these loan policies? Electric consumption on the farm has gone up at a fantastic rate. In 1935, REA reports, electrified farms used an average of 2200 kw hours per farm. By 1954, the average had increased to 4100.

Not only has consumption-per-farm jumped amazingly, but a strong trend toward rural-nonfarm usage has been developing. More and more city dwellers are taking refuge in fringe areas beyond the lines of the metropolitan



Low cost electricity is attracting industry. This plant is in the Kentucky TVA area.

Grand Coulee Dam powerhouse, looking west from main loading deck.

utility companies. They are eligible, just as the farmer is, for this cheap subsidized power.

So is industry, for that matter. One of the chief gripes of the electric utilities has been that REAs are luring industry to the sticks with promises of cheap, governmentally subsidized power.

The story of the REA-private power fight is a long and complicated one, and is beyond the scope of this article. But suffice it to say that REA has no compunctions against lending money to co-ops for the purpose of battling for the fringe areas against established private electric utilities.

Vicious circle

How long can this go on, and how far?

REA has no plans for halting it. In fact, all this growth, into anybody's bailiwick, without regard to competitive difficulties, is what the REA wants—to protect its prior loans. It will continue to lend money in large chunks—to protect its prior loans. A vicious circle.

But, having once been firmly established as a profitable (though "non-profit") institution, can't the co-op cut itself loose and go into the open market for its money? After all, once it has put service into the majority of the homes in its service area, has it not fulfilled the purposes of the government's electrification plan? If it wishes to re-wire or build new generating facilities to build loads, shouldn't this be a program based on sound business economics? Shouldn't it be able to pay standard rates of interest?

"No," says REA. "The co-operative cannot do this. It cannot get a loan from a private institution because we hold the first mortgage on its assets."

Shouldn't the co-operative dip into its own capital reserves?

"No," says REA again. "We encourage the borrowers to build up reserves for depreciation and contingencies, such as storm damage, for example. Disaster insurance rates are prohibitive, so the co-operative must provide its own protection."

This policy can give rise to some unhealthy situations. Co-ops build up reserves, which they invest in safe securities just as any business does (if it has anything left over after taxes.) The REA recommends it invest in 4 per cent government bonds. So it is entirely possible for a co-op to borrow 2 per cent money from the government while it is investing a like amount of "reserves" in government bonds paying twice that amount of interest. The net result is that it might actually make 2 per cent every time it borrows money!

How much can you, as an LPG dealer, set aside untaxed money as a "reserve" against everything imaginable under the sun—construction, expansion, storms, death, or old age?

REA is vulnerable

So there you have, in brief, a picture of the REA, as it stands today. Gone is the concern for the farmer. Today it is bent on building a powerful group of highly profitable co-ops to serve any and all comers. It is encouraging expansion and growth without regard to the ethics involved. Ethics are not its business.

But its future is not assured beyond all measure of doubt. It does have its vulnerable spots.

One of these is the 2 per cent interest rate. This has been under attack for some time, starting with the Hoover Commission's study of lending agencies. Said the commission in its recommendations:

"The interest charged by the Treasury for advances may not exceed 2 per cent. The actual rate of interest now being paid by the Treasury on comparable long-term loans is about 3 per cent. *(It has since gone to 4 per cent.—Ed.)* Interest payable by the cooperatives and other borrowers to the Rural Electrification Administration is also a flat 2 per cent rate and is not payable during the first 5 years; therefore, the full possible interest returns cannot be received.

"The administrative expenses of the Rural Electrification Administration are met by Congressional appropriations which from inception to June, 1953, were a total of $78,667,000. In the fiscal year 1954 the Agency received income, mainly interest on loans, of $41,885,000. Administrative expenses of $7,284,000 plus interest on funds borrowed from the Treasury resulted in a net loss of $5,480,000 for the fiscal year 1954."

The financial plans developed for the borrowers of the Rural Electrification Administration assumed that the physical plant once financed would require little if any further change and that earnings would be used to meet debt service charges. However, these plans have been found to be inadequate because an electric distribution system constantly requires replacement of parts of the system, and increased usage necessitates an increase in the capacity of the system. The additional financial demands for these purposes by the cooperatives have been met for the most part from additional Rural Electrification Administration loans.

Less-than-cost subsidies

Under this method of financing, the Government has subsidized the sale of electric power to the mem-

bers of the cooperative associations at considerably less than its economic cost, the subsidies being provided in the following ways:

(1) The charging of interest at 2 per cent per annum which is from 1 to 2 percentage points less than the interest which the Treasury had to pay on long-term issues to provide the money.

(2) The granting of up to 5-year moratorium periods with a delayed payment of interest which results in an effective rate of return of even less than 2 per cent.

(3) Granting exemption from all Federal taxes (in some States these bodies are exempt from all or some local taxes).

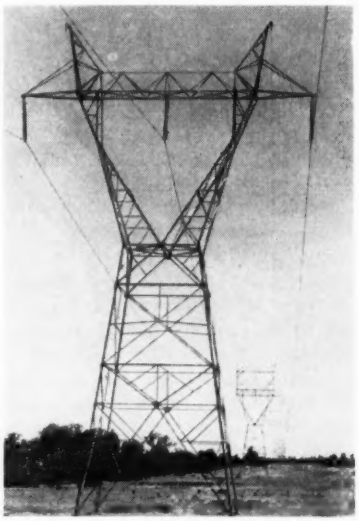
(4) Providing the administrative expenses which in the past 5 years have averaged about $7,750,000 annually from Federal funds.

It has been estimated that the growth of usage of electricity will cause a doubling of the investment of the electric industry in the next 12 years. If this same growth occurs in the electric cooperatives, the loans required from the Rural Electrification Administration under the present method of financing will also double without considering further territorial extensions. By June 30, 1954, 92.3 per cent of all farms were electrified; 54 per cent are supplied by agencies financed by the Rural Electrification Administration and 46 per cent are supplied by privately owned utility companies.

Curbing action

Under the impetus of the Hoover reports, the Eisenhower administration has made some attempts to put lending agencies on a non-subsidy basis. In his budget message early in 1957, the President strongly urged such a change in policy. Taking its cue from the President's message, the Bureau of the Budget had a bill introduced into the Congress last summer. In the House, it was sponsored by Rep. Hiestand (R-Calif.) In the Senate, it was Homer Capehart (R-Ind.) who carried the ball with S 2427, a bill which called for an Act as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That notwithstanding any other provision of law (1) the interest rate on any loan hereafter made by the Treasury to any department or agency of the Federal Government to finance loans made by such department or agency shall be fixed by the Treasury, taking into consideration the current average market yields of outstanding marketable obligations of the United States having



Government-produced power is transmitted to REA-financed electrical co-ops in Washington state.

maturities comparable to the loans made by the department or agency, and (2) the interest rate on any loan hereafter made by any department or agency shall not be less than the rate the department or agency making the loan would pay if it borrowed from the Treasury at the time the interest rate on the loan is fixed, plus an additional amount deemed adequate to cover administrative expenses and probable losses to the extent consistent with the purposes of the loan program.

Senate Banking & Currency Committee hearings were set for a date last July, but were postponed indefinitely by Chairman Fulbright (D-Ark.). The committee felt that the bill failed to indicate to what extent the various loan programs would be affected. Staffers feared that pegging rates to "market yields" was a shaky proposition. In a depressed bond market, yields percentages might hit figures as high as 9 or 10 per cent, they said.

Furthermore, the committee took exception to the levying of "an additional amount deemed adequate to cover administrative expenses and probable losses to the extent consistent with the purposes of the loan program." What, the committee wanted to know, does this mean—precisely? The Bureau of the Budget was asked for clarification. Its answer was not definite enough, so the committee suspended hearings pending further word from the bureau—which, at least until recently, was not forthcoming.

Calling a spade a spade

Unofficially, the Budget Bureau contends that the offending statement gives the agencies plenty of latitude, but forces them to state more clearly the "purposes of the loan program." In other words, it would require them to show a subsidy for what it is. If the Congress should then permit rates to be charged that were below cost, it would be clearly shown that the program involved was truly a subsidy.

This would call a spade a spade, says the Budget Bureau. It would eliminate the hidden subsidies, as requested by Mr. Eisenhower.

It is significant to note that the House bill passed, but the Senate bill died in committee. The bill is expected to come up again in the present Congress. With the new Administration emphasis on cutting the non-defense portions of the budget, it has a good chance of passage.

Thinking in terms of the immediate future, such an act is highly desirable. It would provide a poultice for part of the sore, and a small amount of comfort is better than none. But taking a long look ahead, it is not the answer. The real need is to wipe REA completely off the books. This is the only way that we can hope to preserve the American Free Enterprise System for future generations of American people. ■

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Sid Richardson Gasoline Company brings deliveries to you when desired, just as the chuck-wagon follows and serves the cowhands during round-up time.
Our aim is to make deliveries of highest quality LP-Gas to you right on schedule, at the time and place you specify and in the exact quantities required. To do this we plan carefully and cooperate fully with our customers.
We are able to give you unsurpassed service, since we have no company-owned wholesale or retail outlets competing with you on our shipment schedules.
Contact us now for complete information. Let us show you how our products and service will save you money.
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... again without fail

Through the months of heavy demand of ***eight consecutive winters*** the customers of Sid Richardson Gasoline Co. regularly received on-time deliveries of their contract requirements of top quality LP-GAS. We delivered every year **RIGHT ON SCHEDULE,** as promised in the above advertisement first published in 1950.

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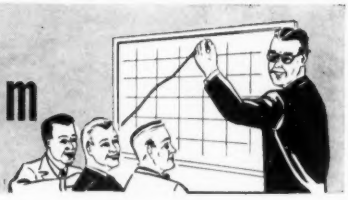

PART 7

How to sell L. P. gas ranges—1

By CARL ABELL · Editor

BEFORE the prospect can reach the decision to buy she must have confidence in (1) the salesman, (2) the firm, and (3) the product. Lesson 2 of this series (October, 1957, issue) was planned to show you how to build up the prospect's confidence in you. We suggest you review that material frequently and regularly. Confidence in the firm is to a large extent a public relations job. While the salesman must participate in this activity, it is largely a function of management. This will be covered in the Sales Management article in our April issue.

Developing the confidence of the prospect in the product is largely up to the salesman. To do this he requires a thorough knowledge of the product. This includes the mechanical, structural and operational features of the product, and how these features work together to make life and living better for the owner. A mere recital of the details of the product is of little value unless their effects are translated into a result that is more desirable to the prospect than the amount of money involved in the deal.

So you must have a good working knowledge of the product. The basis of this will be the catalog information, circulars, bulletins and sales information put out by the manufacturer. This information will always include the general specifications of the item, and the particular sales points which make it different, and presumably better, than directly competitive products. You should know all of these sales points, and should be ready to use them in your sales pitch.

But these points are not very effective if you merely use them as a means of comparing the features of your product with the competitive unit. They mean almost nothing to the prospect unless they are built into your story in such a way

From beauty to ease of cleaning, from broiler to top burners, you can't beat an L. P. gas range

Cut your costs with greater customer satisfaction!

TEMCO

. . . best-built, best-engineered gas heating equipment on today's market!

Temco-built for bigger profits!

The sheer ease with which you sell Temco gas heating equipment means greater profits right from the start! Your customers know the Temco name! They also know the value of Temco specialization which makes this famous, quality-built gas heating equipment cost less to own, less to operate! Your big plus to greater sales is this added promise: Temco gas heating appliances last longer, too! On every sale you make, you can assure your customer a written 20 year warranty on Temco's exclusive Ceramiclad* heat exchanger! Your promise . . . and Temco's written warranty to prove it!

Temco-engineered for fewer service calls!

The wonderful peace of mind with which you install Temco gas heating equipment means extra profits! Because, Temco engineering assures you, as well as your customers, of the most efficient, trouble-free heating equipment money can buy! All Temco gas heating equipment is designed to make your selling job a little quicker, a lot easier—in both farm and urban areas—where Temco gas heating appliances work perfectly . . . conveniently . . . and economically . . . on L.P. gas!**

**Operates equally well on natural and manufactured gas.

Temco-designed for more completeness of line!

The exceptional pride with which you write up your orders, and fill them immediately—with any of the models from Temco's 1958 line . . . the great, new line designed to help you reach every market . . . to help you sell in every price bracket!

TEMCO SPACE HEATERS

Vented and Unvented (both radiant and circulator models) Specifically designed for quick, small-area heating.

TEMCO "PIN-UP" HEATERS

New, unvented heaters that hang on the wall—with only 4 screws. Perfect for zone-controlled heating!

TEMCO "PRE-VENT" HEATERS

Pre-engineered thru-the-wall construction that requires no chimney, no recessing. Installs in any outer wall, at any level—even under windows!

TEMCO UNIT HEATERS

Compact units that provide maximum headroom in restricted areas; suspend from two pipe hangers. Ideal for commercial installations—service stations, restaurants, warehouses, etc.

TEMCO WALL HEATERS

Fit right into the wall between standard studding. Perfect for slab foundation homes. Provide ideal zone-controlled, single-story heating.

TEMCO FLOOR FURNACES

Exceptionally shallow construction permits easier, more economical installation. Mounts flush in the floor. No basement or costly excavation required! All Temco Floor Furnaces, regardless of BTU size—are only 25½" deep and controls are factory installed.

TEMCO CENTRAL HEATING SYSTEMS

A complete line . . . Hi-Boys, Lo-Boys, Counter-Flows, Horizontal and Gravity Furnaces, with a complete selection of sizes in each series. There's a Temco central heating system to fit any application—basement, crawl space, alcove or attic . . . including the amazing new

TEMCO PERIM-AIR-PAC

A completely packaged* gas forced-air system that uses the superior method of perimeter heating! Blankets outer walls with warm, clean, filtered air! Installs in only one day, with no major construction or labor costs!

*Includes ducts, registers and plenums.

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"Gas Heating Specialists for the Nation"

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Reach out now . . . for all the market! Mail this coupon today for Temco's '58 catalogue—featuring this great new sales-making line!

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BTN-3

that they picture a clear advantage to her. You must interpret the sales literature in terms of the prospect's needs and desires.

Three pieces of knowledge

Let's get off the generalities now, and pin this discussion down to a specific case—the sale of a range. In order to interpret its features into the needs and desires of the prospect, you need to know (1) what those needs and desires are, (2) the fundamental principles of cooking, and (3) the way gas and electric ranges function in providing the heat necessary to do the important types of cooking. The latter are, of course, boiling, frying, broiling, baking and roasting. The other types are variations or combinations of these methods.

In Lesson 3 (November, 1957) we told you how to determine the needs and desires of the prospect. For knowledge of the principles and types of cooking, we suggest that you have a nice long session with the domestic science teacher of your local school, or with a qualified home economist. (Why not have one of these girls participate in one of your sales training meetings and give this information to your entire organization?) For knowledge of the way gas and electric ranges function there is a wonderful booklet put out by the Gas Appliance Manufacturers Association, called "Quickie Demos."

It not only shows the functioning of gas and electric cooking equipment—it also interprets these principles and differences into ready-made sales pitches and demonstrations for the use of salesmen. The manufacturers of the special top burners, Harper-Wyman for the Alltrol and Robertshaw-Fulton for the thermostatic top burner, also put out excellent sales aid material. You should have the booklets issued by the one whose burner is on your line of ranges.

The whistling tea kettle is a necessity in every L. P. gas dealer's showroom for showing the speed and versatility of the top burners.

Similarly, you should know the sales features of the products with which you compete. Through the study of their literature you will learn what you have to buck. But you should avoid making comparisons or direct references to their competitive features. Use this information as a guide to the points on which you need to build an especially favorable pitch in favor of your own product. If you build a good enough story for your range, you will not need to knock the competitor. You can ignore competition.

When you have mastered this information, you will be prepared to build up that confidence in the prospect. You can tell her, show her, make her believe.

Always competition

This problem would be simpler if no competition were involved. Now and then there is a deal on which you have no competition, but there will never be enough of those to keep you alive. You may only be competing with another make of L. P. gas range, but you may also be competing with electricity and an electric range.

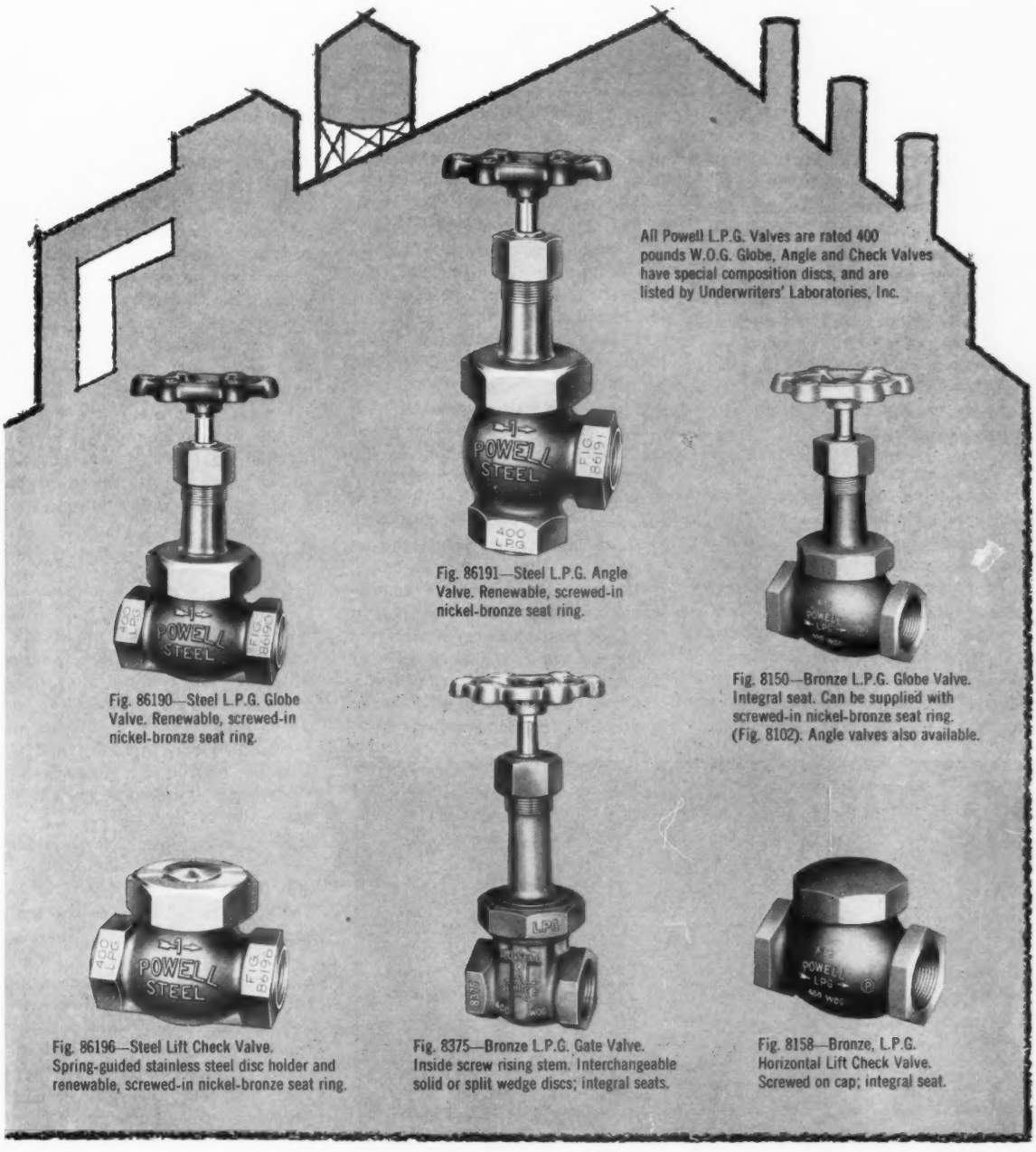
Strategy in all of these cases includes giving the strongest possible pitch on the appliance that you are offering. In the last case you must include everything possible that shows why your range, operating on L. P. gas, will give more satisfactory service than a similar range operating on electricity. You may be selling two products instead of just one—L. P. gas and the appliance—but they can be sold most effectively by showing her *how well your range meets her needs.*

Even if she has just come from the competitive electric appliance store, or has told you that she wants to look the electric range over before she makes up her mind, the effective strategy is still to show her how well your appliance meets her needs. Spend your time on that definite effort, instead of trying to build a case against the electric appliance. Your attitude against Reddy Kilowatt's competition should be, "Electric ranges must be good, or so many people would not buy them. But there are certain things they will not do, and other things that ours will do better. Let me show you a few of them." Then you go right into your regular sales pitch and demonstration.

As you come to the parts of your show dealing with features on which gas is superior, you follow a definite formula in making the comparison: (1) Demonstrate and explain how perfectly your L. P. gas appliance performs in that respect. (2) The electric competitor *is not able to perform as well* because— . Show the advantage of

POWELL

world's largest family of valves



All Powell L.P.G. Valves are rated 400 pounds W.O.G. Globe, Angle and Check Valves have special composition discs, and are listed by Underwriters' Laboratories, Inc.

Fig. 86190—Steel L.P.G. Globe Valve. Renewable, screwed-in nickel-bronze seat ring.

Fig. 86191—Steel L.P.G. Angle Valve. Renewable, screwed-in nickel-bronze seat ring.

Fig. 8150—Bronze L.P.G. Globe Valve. Integral seat. Can be supplied with screwed-in nickel-bronze seat ring. (Fig. 8102). Angle valves also available.

Fig. 86196—Steel Lift Check Valve. Spring-guided stainless steel disc holder and renewable, screwed-in nickel-bronze seat ring.

Fig. 8375—Bronze L.P.G. Gate Valve. Inside screw rising stem. Interchangeable solid or split wedge discs; integral seats.

Fig. 8158—Bronze, L.P.G. Horizontal Lift Check Valve. Screwed on cap; integral seat.

For every flow control problem Powell offers more kinds or types, available in the largest variety of metals and alloys to handle every flow control requirement. Powell distributors are located in all principal cities and maintain inventories to fill almost any need. For special engineering problems, write direct to:

THE WM. POWELL COMPANY • *Dependable Valves Since 1846* • **Cincinnati 22, Ohio**

your product first, the disadvantage of the competitive product last, and watch your wording. You want to leave the impression that it is not possible for the competitive product to equal yours. Never try to reverse that order, and never be caught making an unprovoked attack on the competitive product, and never depart from the truth. To do so violates the great American spirit of good sportsmanship and fair play. It arouses sympathy for the under dog. It almost guarantees that you will waste the interview and lose the sale.

The procedure recommended above emphasizes the desirability of your product, and casually drops your competitor into second place. Which is what you want to do anyway, so why not take the direct and effective route? Show what you have that your competitor can not equal.

LPG range superiority

With this principle fresh in our minds, let us consider some of the features on which such points of superiority of L. P. gas and the gas range can be developed. To get a concrete case for diagnosis, suppose that you are in your showroom with a prospect who wants a range for a new home, but is undecided whether she will buy an electric or gas model. You have, or at least should have, your very finest range connected up ready for a live demonstration. It will have all the modern features—thermostatic oven control connected to an on-and-off time clock, roast-minder, separate broiler, griddle, jumbo top burner, one or more Alltrol center simmer burners or thermostatically controlled top burners. It is a symphony of chrome and white porcelain enamel, and it is spotlessly clean.

On one of the special top burners is a deep Pyrex cooking dish nearly full of water, in which you have placed some scraps of colored balloon rubber or cloth. The burner is turned on, but very low, so the water is in motion and bubbles are clinging to the dish. The temperature is at or just under a slow boil. Around the bottom of the dish you have placed a clean pocket handkerchief or a sheet of Kleenex. As an added demonstration prop you have a whistling teakettle with a little cold water. And a special pan with a thermometer in the cover will sometimes be a big help.

Assuming that you have asked the necessary questions that give you a picture of her needs and an estimate of what she has in mind, it is time to show her your demonstration. Take her to a spot in front of the demonstrator from which she can get a good view of the entire range, and stop for a moment. You want to give her a "favorable first impression."

The principle of how the gas flame in the broiler burns up smoke and vapors from broiling food can easily be shown with the cigarette and match demonstration. The cigarette smoke reaches the match flame, then is consumed.

You begin, "Isn't that a beauty?" Then you give her a quick summary of the important overall characteristics, phrased in such a way as to relate them as closely as possible to her needs and desires. You are not yet making a sales talk—you are prospecting to find out what points will seem most important to her.

Watch her reactions closely to see which points seem to draw the most interest. The entire surface is chrome or porcelain enamel, so it will be permanently beautiful. It is the easiest range in America to keep clean inside and outside. With the automatic oven controls she can cook an entire meal, and have it ready just at mealtime, without even being in the house. She can have any temperature she wants on the top burners, just at the touch of a valve. Not just three speeds, or five speeds, but any speed that she wants. At each step, put her in the picture and watch her reactions. Start your demonstration and explanation with the thing that seems to interest her the most.

Easy to keep clean

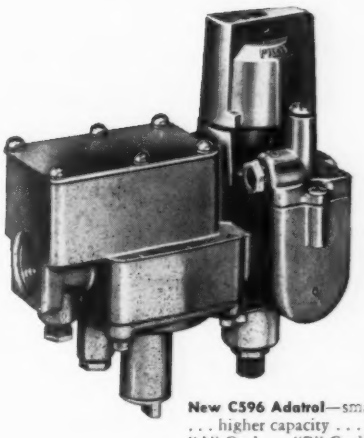
Let's suppose that she showed the most favorable reaction to the "easy to keep clean" appeal. She has led you right into something on which you can really score a bullseye. Overall, it is easy to keep clean because of the chrome and porcelain enamel surface, and the absence of angles and crannies from which it would be hard to remove dirt.

Now, since most cooking is done on the top burners, she will probably be most interested in how they are kept clean. Suppose she spills some food over a burner. Show her how easily and simply it is disassembled, so she can take everything to the sink and wash away the spilled food. While you have the burner out show her that it is made of material that will never rust, but will always look clean. Show her the non-clogging ports, and point out that the burner will never need to be replaced, and will never lose efficiency. The stove top goes back together as easily as it came apart. You just lay the pieces in place.

Isn't this an opportune time to point out that it is not possible to

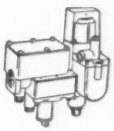
New flexibility for room and wall heaters

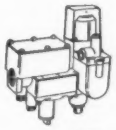
Now, Honeywell's famous Adatrol*—with or without pressure regulator

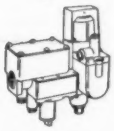
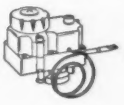


New C596 Adatrol—smaller . . . higher capacity . . . with "A" Cock . . "B" Cock . . . complete pilot shut-off . . . unregulated pilot gas.

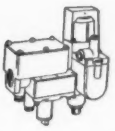
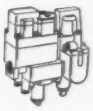
Offer four control combinations—stock one basic unit:

1. Basic C596 Adatrol unit  for on-off control . . .

2. Adatrol  plus snap-action T5000 Thermostat equals V5165 Adatrol

3. Adatrol  plus T5001 Modusnap* Thermostat  equals

V5166 Adatrol Modusnap— offers both snap-action and modulating control.

4. Adatrol  plus V8003 24-volt operator equals V8168 

provides for wall-mounted Honeywell Round Thermostat.

Honeywell

First in Controls

Honeywell's new C596 Adatrol Manifold (Gas Cock Pilotstat*) is easier to sell than ever! You offer specific thermostatic control best-suited to individual needs. You can sell budget-minded customers the pilotstat now—and their choice of add-on thermostats later. Installation time is only 5 minutes! The C596 is shorter to fit modern smaller space installations. Its integrally located pressure regulator provides maximum flexibility for all types of installations. For complete information, call your local Honeywell office. Or write Minneapolis-Honeywell, Dept. BN-3-50, Minneapolis 8, Minn.

*Trademark

SUGGESTED PROGRAM FOR SALES TRAINING MEETING NO. 7

Props for the meeting—complete sets of your range manufacturer's circulars, sales aids, sales bulletins and price lists.

1—Review all of the above material, making sure that the salesmen know: (1) what construction features are the same on all models; (2) what extra features are included in the better models; and (3) what optional equipment or arrangements are available—colors, top burner arrangements, special burners, controls, etc.

2—Selecting from the list of standard features of the line and special features of the best model, ask each salesman to give a talk and demonstration on some specific feature. Ask all the others to study his effort in relation to the following points:

Did he introduce it well?
Did he cover the advantages thoroughly?
Did he relate these advantages to the prospect's needs and desires?
Did he ask a good closing question?
How could his presentation be improved?

3—Have one of your best salesmen give a pitch on one specific feature showing the superiority of gas over electricity. Does he do it according to the formula outlined in this lesson?

4—Do the salesmen understand the difference between circulating heat and radiant heat as used in ovens? You can explain and demonstrate it, using as examples a circulating space heater and a small electric bathroom heater. Have each man hold his hand up close to the electric heater, and then block the heat with a piece of paper. It's that simple.

5—Each salesman should have a copy of the sales aid booklets mentioned in this lesson, as put out by the Gas Appliance Manufacturers Association and the manufacturers of the special burners and controls used on your line of ranges. If they do not have them, please get a supply at once. They contain information that the salesmen need every day. The meeting program for next month will be based largely on those booklets.

make electric ranges so spillovers can be cleaned up so easily. In most cases the heating elements do not even come out—the spilled food must be cleaned out of the coils right on the stove.

Ovens must be cleaned. Everything here is smooth finished and easy to get at, so it can be washed with the least possible effort. But that is not the whole story. This is not a sealed type oven—it is the circulating type, and this feature reduces the tendency for the steam and volatile products coming out of the food to settle on the oven walls. That circulation is set up by the action of the flame at the burner. It provides the power that moves the air.

In the electric oven there is no such source of power, so the air stagnates and allows more of the cooking vapors to settle on the oven walls. This tends to transfer odors from one batch of food to the next, and nobody likes fish-flavored creampuffs.

The broiler

Now, about the broiler. Broiled meats are more desirable than fried meats because they retain more of the juices and food value, and they do not have the greasy coating that makes them harder to digest and puts more weight on the hips and around the middle. Broiled meats also taste better. Flame seals the surface and improves the flavor. That's why the finest steak houses use either gas or charcoal broilers.

All broiling produces smoke as the oils in the fat distill out into the air. But this is a smokeless broiler. How come? Because the flame consumes the smoke, just as this lighted match consumes the smoke of this cigarette.

In the electric broiler there is no flame to consume the smoke. The distilled oils that make the smoke must either settle on the broiler walls or pass out into the kitchen, where they settle on everything including the kitchen walls and curtains. There are restaurant kitchens down in the TVA country in Tennessee and Kentucky that once had all-electric kitchens, including broilers. Many of them have taken out the electric broilers and replaced them with L. P. gas broilers. It was just costing them too much money to keep their kitchen walls clean enough to pass inspection by the board of health. With the gas broiler they do not have to wash or paint so frequently. (I once had a steak in an electric-equipped diner at Paducah, Kentucky. It was on the menu as "broiled," but I watched the cook grill it beside the hotcakes on the cooking top. They gave me three reasons for this—the steak was just about as good cooked one way as the other; it took too long to heat up the broiler; and it was just too much work to be cleaning the broiler all the time. So they grilled their broiled steaks, and used the electric broiler as a warming oven for hot rolls and plates.)

Perhaps your prospect brings up the old myth that "grease from the gas gets the walls dirty." You know that isn't true, but you also know that a flat denial will just arouse resentment and may cost you the loss of a sale. So you take the back-handed approach. "Quite a lot of people do believe that, but there are also plenty of people who believe that walls get dirtier with electric cooking. Just to settle the matter, our company asked a leading home economist to give us the true causes of the film that forms on kitchen walls. She reported that nearly all of this scum comes from cooking vapors or from airborne dirt that comes into the kitchen from outdoors. The big offenders are steam, which carries volatile oils from the food; the oily vapors that come directly out of meat; and the vaporized shortening that we get when foods are fried.

"Actually, according to this authority and many others, there isn't

SAFTI-VENT
—the most complete line of sealed combustion chamber gas heating units

Model GW-16

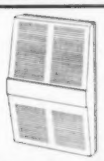
Model GW-22

Model GW-30

Model GWT-16

New, for '58
Model GWT-22

New, for '58
Model GWT-30

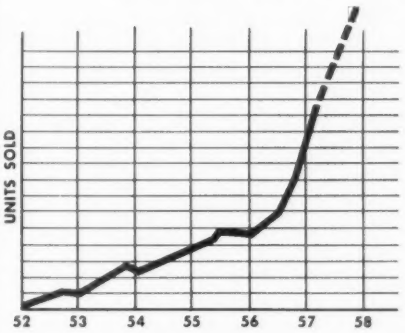


New, for '58
Model GWR-8 (recessed)

New, for '58
Model GWT-8

This is the SAFTI-VENT Sales Picture

JOIN THE WINNING TEAM!



Here's the Safti-Vent deal!

- New, 1958 product styling
- New, 1958 units
- Aggressive sales promotion
- Stocks near you, wherever you are
- Generous discounts and datings

—and *dealer and distributor profits assured—proved* by 6 years of Safti-Vent's phenomenal sales increase. No other manufacturer can make this statement!

NOW—here's proof of profit!

The right product almost sells itself! In 1958, Safti-Vent will be available in 8 different models. Count 'em! 8! The *most complete line* of sealed combustion, thru-the-wall gas heating units offered by any manufacturer! See the brand new, low-priced, 8000 BTU units. Built for recessed or flush installation. And available in decorator color or in white for big sales for bathrooms.

More! The entire 1958 Safti-Vent line is restyled. Modern, two-tone color combinations. New and strong sales appeal.

Broad markets are ready to buy! With this complete Safti-Vent line, you can sell to householders for new residences, for modernizing, for summer homes. Apartments are big multiple-sale prospects. More motels use Safti-Vent than any other sealed combustion brand! These prospects are your customers with Safti-Vent!

Aggressive advertising and sales promotion brings in customers. When you put Safti-Vent on your floor, customers *know* this well-established brand. And in 1958, Safti-Vent promotion will be heavier than ever! To motel and apartment owners. To builders and contractors. To architects! And to *millions* of householders who want to buy more heat for comfort living. Each ad is couponed and the thousands of inquiries we receive will be passed along to Safti-Vent dealers for profitable sales follow-up. This plan of sale building is *proved successful!* It will be even bigger and stronger in 1958!

Generous discount and dating plans spell bigger profits for you! In addition to big discounts from recommended resale prices, Safti-Vent offers special extra discounts for early shipment, an anticipation discount and a program of Fall dating. Investigate these! They will make big money for you!

Stocks are near you — for prompt shipment! No matter where you are, Safti-Vent stocks are close-by. No long-time shipping delay! This means lower inventory, faster turnover, better profits.

Proved — by 6 pioneering years of sales experience! Anybody can *claim* a profitable deal. Safti-Vent can *prove* it! Proof of success, proof of profit, has been built on six years of *proved, profitable experience!* Join the winning Safti-Vent team! Talk to your Safti-Vent distributor or mail the coupon for full description of the sensational Safti-Vent deal. Mail today!

H.C. Little BURNER COMPANY, INC. **San Rafael, Calif.**

Leaders in the sealed combustion gas heating field.

H. C. Little Burner Co. N
San Rafael, California

If the Safti-Vent deal is as good as you say, of course were interested. Prove it!

Company _____

Individual _____

Address _____

anything in L. P. gas that could form a greasy film. Any difference that exists would have to come from the limitations of the range or the habits of the cook. Let's check some of the fine points. In frying foods, the amount of shortening lost by vaporization would be exactly the same at the same temperature, regardless of whether the heat comes from a pipe or a wire. In broiling, our L. P. gas broiler is smokeless, and everybody tells us that smoke from an electric broiler is quite a problem. It isn't really smoke, it is the oils distilled out of the fat in the meat. For some reason or other it is necessary to keep the door of the electric broiler open an inch or two, which lets this oily vapor out into the room. The L. P. gas broiler door is kept closed.

"Now we come to the really big offender, which is steam that carries the volatile oils escaping from food that is being boiled. Obviously, the harder we boil the food, the faster this steam comes off, and the more oily vapor it can carry. Now, here is something that most housewives overlook. A pot that is just barely boiling is cooking just as fast as one that is really whooping it up, in spite of the fact that with the fast boiling you are putting a great deal more heat into it. All that we accomplish with fast boiling is to drive the water out faster. We risk getting boil-overs, and also boiling dry and burning. As long as the steam can escape, the temperature of the food is exactly the same whether it is barely boiling like this Pyrex dish, or boiling as fast as the burner can make it go. And look at the difference in the fuel that is being consumed. This is boiling with so little heat that it does not even scorch this handkerchief that is right up against the base of the dish. Any more heat would just waste fuel."

Top burners

"By the way," you continue, "did you notice that this tiny section of the burner that is operating now is right under the center of the dish? That allows nearly all of the heat to go into the food, and that is why the handkerchief has not been scorched. The same would be true with a much smaller dish. The heat from a gas flame follows the contour of the dish or pan, so a very high percentage of it is absorbed. That makes it possible to cook efficiently with gas in a vessel of almost any size or shape.

"The electric range people will tell you that with their stove, you need to use special pans that fit the heating elements exactly. This is quite logical, since the electric heating element must be spread out over a considerable area. So with gas you can use the cooking utensils that you now have, without going to the expense of buying a whole new set of pans to fit the burners. That's a part of the expense of an electric range, and at present prices it can be quite an item. Don't you agree?

"Mrs. Jones, these modern gas burners have a number of other very important advantages. For example, you can get any temperature you want any time that you want it. Let's say you are cooking a stew, or boiling the potatoes, or cooking hotcakes, or just boiling a little water to make tea. (Put your whistling teakettle on a burner, preferably the one with the Alltrol center simmer or the thermostatic burner, whichever is on your range, turn the burner wide open, and go on talking.) You can turn the burner wide open to get up to cooking temperature, and you get full heat right now. There is no waiting while an electric element heats up. The full heat of the burner starts doing its job immediately, and during this part of the cooking cycle there is no advantage in taking it slow. Your stew and potatoes cook by boiling, not by spending a lot of time getting up to boiling temperature. Hotcakes do not cook properly until the griddle is up to the right temperature.

"As soon as you reach cooking temperature, you turn the flame down to maintain exactly the temperature that you need. And you can get the exact temperature with gas. You do not need to compromise on the nearest of three or five or six temperatures, none of which may be exactly right for best cooking or top economy.

(You continue along this line until the teakettle begins to whistle, then you turn the valve down low, doing it fast enough that the whistle stops abruptly.) "Mrs. Jones, see how the heat responds immediately to the setting of the valve. That's because you are cooking with a flame, instead of with heat that is built up and stored in a heated element.

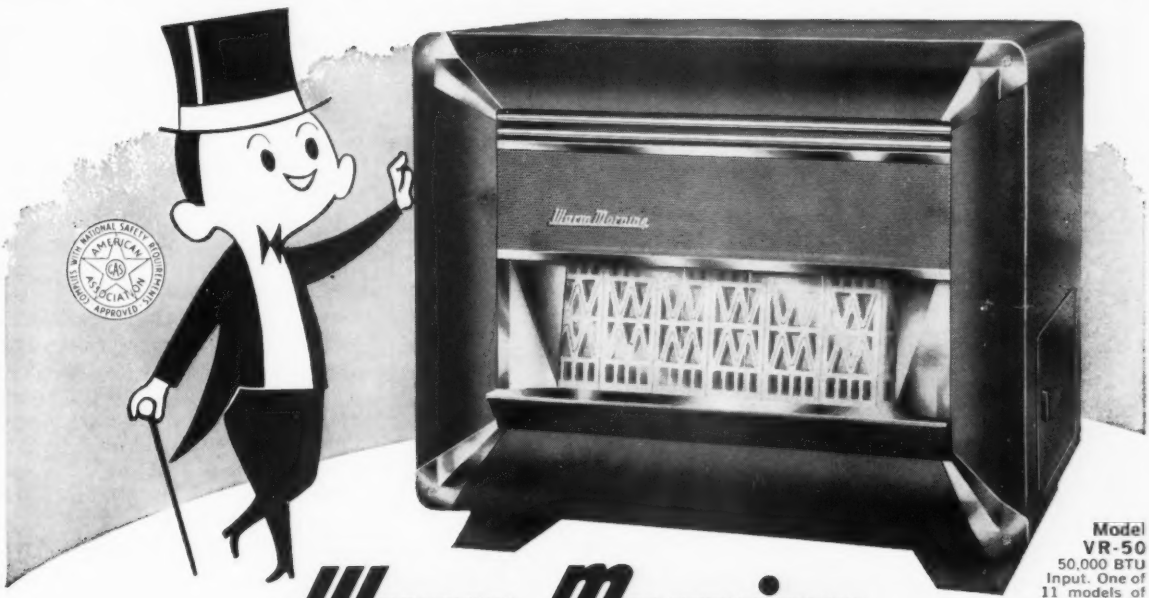
"This flame responds to its setting just as your automobile responds to its throttle. You can get any speed you want, and get it instantly. (Open the valve slowly, bringing the whistle up to its highest pitch, and then turn it back down quickly. Ask her to do the same, so she can see how responsive the flame really is.) Now watch how easy it is to set this burner so the temperature is just right for a slow boil. (Adjust it so the kettle makes a steady but barely audible whistle.) Now it is cooking at exactly the right speed for the stew or the potatoes, and with the lowest possible use of fuel. And see what a small flame is needed to hold that temperature.

"Incidentally, this same small flame will keep a big pot of stew cooking properly after it has first been brought up to a boil. It is much simpler, and far more accurate than trying to do the same thing with a heating system that works in steps and is limited to three, five or six temperatures. The gas burner will give you a thousand speeds if you want them. Don't you think that makes cooking easier and simpler?

The baking oven

"Then we must consider baking. This range has a circulating type oven which distributes the heat evenly throughout the interior. This is the only type of oven that does have such uniform heat distribution. With it you can cook a cake or a loaf of bread from every

Warm Morning's 100% Sales Increase In 1957 Points the Way to Greater Sales and Profits for You In 1958!



Model VR-50
50,000 BTU Input. One of 11 models of vented and unvented gas heaters available.

Warm Morning® GAS HEATERS

The new WARM MORNING gas heaters were the sensation of the 1957 selling season, with a spectacular increase in sales of more than 100%. Now is the time for you to get on the WARM MORNING Bandwagon!

- WARM MORNING factory facilities are being further expanded now to meet the increasing demand for these beautifully styled, feature-packed gas heaters. Dealers will be backed up with more powerful advertising and selling support than ever before.

It will pay you to investigate the terrific opportunities for profit with the new WARM MORNING gas heaters. Right now, your WARM MORNING distributor is offering big early booking discounts plus anticipation or fall dating.

America's Most Beautiful Gas Heater Line Offers You:

- Big Early Booking and Anticipation Discounts!
- Liberal Fall Dating Plan!
- More Powerful Advertising and Promotional Support!

SEND a postcard now for **full color** catalog that illustrates and describes the complete WARM MORNING line. If you wish, we will have a sales representative of your WARM MORNING distributor contact you soon.

LOCKE STOVE COMPANY

114 F West 11th Street Kansas City 5, Missouri

Manufacturer of *Warm Morning* Heaters and Incinerators and **Moore's** Gas Heaters

direction, and you can bake trays of cookies on both the top and bottom racks at the same time, and they will be done at the same time. Or you can fill both racks with pans of bread or pies, and they will all bake evenly. This is only possible with circulating heat.

"With radiant heat, the rays travel in a straight line, just like light. If anything obstructs their passage, you get the same effect as a shadow—it is cooler where the direct heat rays are not striking. This is one of the greatest advantages that the gas oven offers over the electric oven."

These are only a few of the advantages that you can quote for all gas ranges. As we mentioned earlier in the discussion, there are many special features built into each make of range. The one that your firm handles has its own features that make excellent confidence builders. You should build your own story around each of these features, playing it up so your prospect will see that yours is the range that will give her the utmost in useability and satisfaction.

Lower price models

So far we have discussed only your range that stands at the top of the line. Suppose, you ask, this prospect came in to look at a lower priced model. Why not show her what she came to see? You probably have exactly what she has in mind, and in many cases it is a "price model." Be perfectly frank —you have the lower priced range. The one you have connected to the gas line has many of the same features, so on the "live" range you can show her many of those features in action. This range also has some extra features that can not be included in the *other* (not "cheaper" or "inferior") model. Just as a matter of interest, you would like to show her those special features. She might want them included in her present purchase when she finds out how much they will save in time and convenience, and she will certainly want them in the next range that she buys. And besides, the monthly payments will be almost the same.

Did she say she might be interested in an electric range? That is the one best reason in the world for trying to sell her the best range on the floor. Electric ranges are sold as "modern" and "automatic." It is becoming difficult to find a simple and inexpensive model. The electric appliance salesmen are trained to use those appeals to the limit. If your prospect goes from your place to the electric appliance store, and is shown the features of their most modern and automatic model, your only effective defense is to have shown her the full array of modern and automatic features of your best L. P. gas range. If she positively can not buy your top model, you haven't lost a thing—you can always switch to the model that she *can* buy. It is far more difficult to switch to a better model if you make your big pitch on a lower priced job.

This discussion has coverel only a few of the advantages of the L. P. gas range. There are many other important factors yet to discuss—speed, cool kitchens, economy, and several others. We will continue with those subjects in Part 8 which will appear in our April issue. ■

Transfer Up To 19.5 Gallons L P Gas Per Minute Without Bleeding or Electricity

You can do it safely too, with the new Blue LP Gas Transfer Pump. Only two quick-coupling connections are necessary and the pump is ready for operation. This pump was specifically designed to replace the bleeding method of filling. With the old fashioned bleeding method you will have an average loss of 12½%—with the BLUE LP Pump you will have an average loss of ONLY ¼%. Think of the extra savings you will make!

THE BLUE (Vapor Operated) LP GAS TRANSFER PUMP

- ★ Saves 90% to 95% gas over bleeding transfers
- ★ Simple operation — no bulky engines
- ★ Delivers 150% to 200% faster than bleeding
- ★ Quickly paid for with gas savings
- ★ Safer than bleeding
- ★ Light weight — easily installed
- ★ Approved by Underwriters Laboratories

WRITE, WIRE OR PHONE for more information today.

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John Blue Company, Inc., HUNTSVILLE, ALABAMA

Dependable Farm Equipment Since 1886

"Looking for more sales and profits?"

You can boost those slumping warm weather sales with these DAL-WORTH units designed to make the switch to complete LP Gas farm operation more convenient . . . more economical.

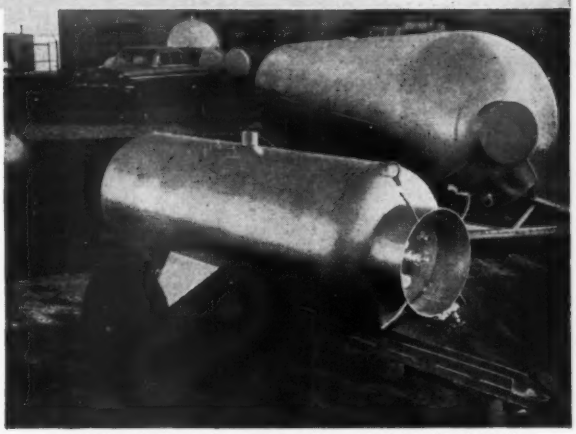
DAL-WORTH portable LP gas tanks eliminate the loss of time for moving lumbering equipment to a refueling point. The 2-wheel unit can be in place and equipment refueled in a matter of minutes.

The 4-wheel anhydrous ammonia tank offers the additional feature of quick conversion to a simple trailer unit for miscellaneous hauling.

You can sell these units with the assurance that your customer is getting the finest equipment money can buy . . . backed by over a quarter century of experience and the DAL - WORTH "CERTIFIED CONSTRUCTION" SEAL.

Whatever your needs . . . on the ground, on skids, or on wheels . . . you'll do best to come to DAL-WORTH!

Send for Dal-Worth's newest catalog of quality engineered LP gas and anhydrous ammonia tanks . . . the coupon is for your convenience.



2-Wheel Portable Refueling Units. Available in 250-gallon and 500-gallon capacities.

4-Wheel Portable Anhydrous Ammonia Tanks. 500-gallon and 1000-gallon Capacities.

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City_____ State_____

Servel gas refrigerator available in April under RCA-Whirlpool name

All-gas packaged kitchen seen after end of year

A Servel gas refrigerator "with a face-lift" and bearing the RCA-Whirlpool name plate will be marketed in April as the first part in a three stage gas refrigerator program now underway at Whirlpool Corp., purchasers of the Servel gas refrigerator, according to Elisha Gray II, president.

In an exclusive interview with BUTANE-PROPANE *News*, Mr. Gray reported that the firm he heads plans to depend on the nation's LPG dealers to market a good portion of its gas refrigerators.

The present Servel will be more radically changed after the second phase of the program, which is aimed at redesigning the gas absorbtion unit so it will fit into the same box as the electric RCA-Whirlpool refrigerator. There is a probability that the electric counterpart will also borrow the automatic ice-maker from its new cousin.

The third phase of the program, research for which it is expected to cost Whirlpool one-half million dollars per year, is to redesign the absorbtion unit itself for greater performance on all fronts. The firm also has a plan for cutting the heat output of the unit.

An all-gas RCA-Whirlpool kitchen package should be available shortly after Whirlpool completes its family of gas appliances with the addition of a water heater scheduled for the end of this year. Mr. Gray expects that one of the present water heater lines will be acquired but told BUTANE-PROPANE *News* that his company is working on a new gas water heater that will be quite different from any presently on the market. Whirlpool Corp. spent $1 million on research during 1957.

Defending the company policy of making identical gas and electric appliances, Mr. Gray stated that 90 per cent of the research and development on any appliance is exactly the same regardless of the fuel. If this 90 per cent of research can be divided between two appliances—gas and electric, a company can afford to spend more money on this part of the development program. Likewise, greater production economies can be had by producing gas and electric appliances with the same basic tooling for the cabinets. The result, Mr. Gray said, is a better appliance for less money.

Gas appliance sales are handled through RCA-Whirlpool distributors and the gas refrigerator will be handled the same way. The box on the market this spring will have 15 changes from the previous Servel, but these will all be in decoration, color and design of the inside of the door and the crispers.

Peter N. Prussing, western regional manager for the Whirlpool Corp., told BPN he plans to give LPG dealers in his territory all of the help they can use in promoting and selling the refrigerator. He too is counting on LPG dealers for a large share of sales.

Whirlpool, which is partially owned (18 per cent) by Sears, Roebuck & Co., also makes the Kenmore brand appliances for Sears. Mr. Gray stated a possibility does exist that his firm will make a Kenmore gas refrigerator for Sears at some future date.

RCA-Whirlpool gas appliances are sold by a sales staff interested in the sale of gas appliances only. The firm plans to back up all warranties on Servel refrigerators sold by Servel Inc. before that company sold its refrigerator line.

In addition to the recently-acquired gas refrigerator and the soon-to-be-acquired gas water heater, Whirlpool already has a gas range, a gas dryer, and a combination washer-gas dryer. The St. Joseph, Mich., company predicts more and better gas appliances in the years to come and Mr. Gray indicated his belief that gas appliances are a bright spot in the overall appliance picture.

Manufacturers see slight appliance upswing in '58

Although unit sales of gas appliances during 1958 are expected to show only moderate gains over 1957, gas appliance and equipment manufacturers expect substantial increases in dollar volume due to increased demand for top quality and top capacity gas heating systems, water heaters, and ranges.

Manufacturers believe this demand will come especially from home builders and modernizers, according to Edward R. Martin, director of marketing and statistics for the Gas Appliance Manufacturers Association, who compiled the survey which reveals the consensus thinking of manufacturers.

In all cases, GAMA's Martin reported that analysis of individual company expectations shows that actual shipments could be much higher then the consensus prediction.

The consensus expectations are:

Domestic gas range unit shipments up 0.6 per cent in 1958, but built-ins showing gains of 19 per cent.

Automatic gas water heaters shipments up 1.2 per cent with 40 gal. and over heaters up 11.2 per cent.

Gas central heating equipment unit shipments should rise 2 per cent in 1958 with warm air furnaces up 2.7 per cent, boilers up 7.6 per cent, but conversion burners down 4.8 per cent.

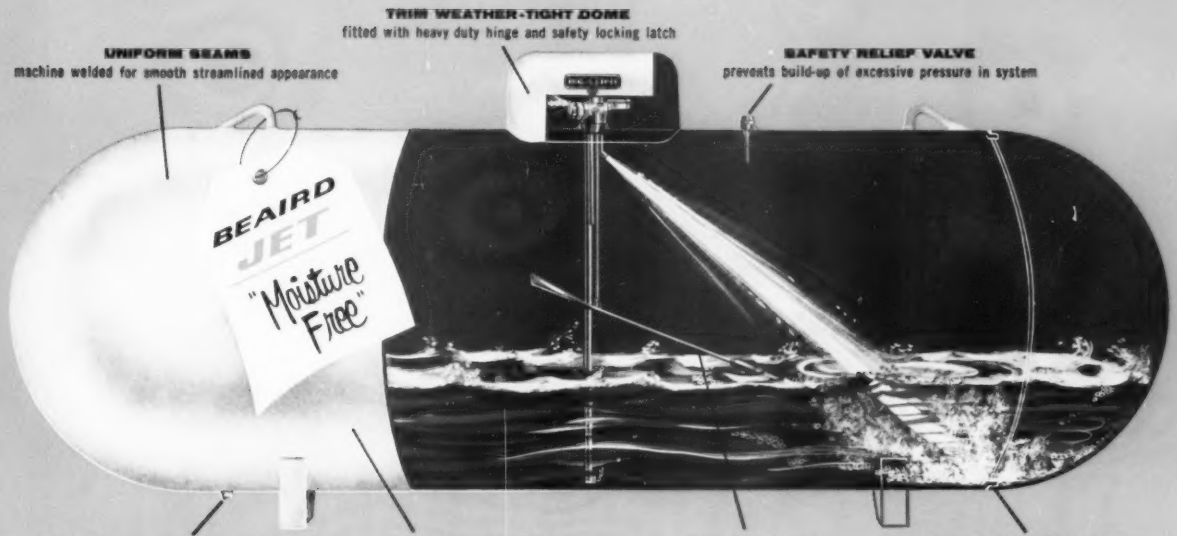
Gas direct heating equipment is expected to decrease in units shinped by 1.6 per cent.

Vented recessed wall heaters up 1.6 per cent.

Floor furnaces down 3.7 per cent.

Unit heaters up 13.3 per cent.

Here's the Inside Information...



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Compare Beaird LP-Gas systems with all others and you will find the important quality differences. Only Beaird offers so many advantages to both dealer and customer.

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There is Jet Filling to speed up deliveries . . . Thermo-Vacuum dehydration . . . Moisture-Free system to end freeze-up service calls . . . top quality fittings for long trouble-free operation . . . unbroken record of safety . . . hard hitting merchandising aids . . . stocking points that lower inventory costs . . . long term financing.

FOR THE CUSTOMER

There is Beaird's written guarantee. Dependable, uniform gas service . . . attractive weather-weld enamel finish . . . safe liquid withdrawal valve . . . easy to read float gauge . . . locking dome to prevent tampering . . . quality controlled construction for long trouble-free service.

Give yourself and your customer a better deal in '58 as a Beaird LP-Gas System Dealer. Write today for New Illustrated Brochure.

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LP-GAS & NH-3 EQUIPMENT

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End fitted
Beaird Blue Belle System
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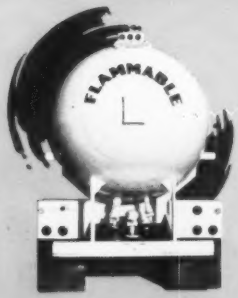
T-1 STEEL BEAIRD PAYLINER TRANSPORTS

CUSTOM DESIGNED FOR YOUR AREA . . . YOUR TRACTOR

Now you can haul more . . . more profitably with Beaird T-1 Steel Payliner Transports. Structurally designed to eliminate excess dead weight T-1 steel payliners are lighter, stronger and give greater length of service with less maintenance. T-1 steel has a higher tensile strength . . . is harder . . . and has exceptional yield strength. These are the characteristics you want in your next LP-Gas Transport.

Beaird "Product Engineering" gives you maximum allowable payload for your area and product . . . Butane or Propane . . . Payliners meet the 1956 edition of ASME code for unfired pressure vessels and MCC 330 ICC code requirements. Every Payliner is thoroughly road tested and inspected before delivery.



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LPGA

Duct furnaces up 6.7 per cent.

Gas incinerators up 5.4 per cent. Incinerator manufacturers are looking forward with optimism to this year's sales, Mr. Martin reported.

Although gas clothes dryer figures were inconclusive, reports received showed sales increases with gas models continuing to overtake electric dryers (see February 1958 BPN).

Norwalk offers awards for its oldest valves

To celebrate more than 80 years of manufacturing and servicing gas and air control valves, Norwalk Valve Co. is offering awards of $100, $75, $50, and $25 for information on the location of the oldest Connelly and Norwalk valves in continuous operation for the longest number of years.

Connelly valves, first manufactured in 1876, were incorporated into the Norwalk line in 1945, and all products are now distributed under the Norwalk name.

B. T. Harris retires effective February 1

B. T. Harris, president of the Harris Butane Gas Co. and of Harris Distributors Inc., both of Little Rock, Ark., retired effective February 1. He will continue his interest in the companies and his membership on the boards of directors, and will serve as consultant.

Mr. Harris entered the L. P. gas industry in 1935. The Harris companies have grown from a one-truck operation into 11 separate corporations, operating 175 trucks and employing nearly 300 persons.

Girl wins sports car in nationwide contest

Miss Helen Yalch, Muskogee, Okla., took first prize in the Robertshaw-Fulton "Automatic Range Top Cooking" competition. As her prize she selected the blue and white Chevrolet Impala sports hardtop.

Miss Yalch's entry consisted of a piece of facial tissue, a saucepan, and an automatic heat-controlled "surface unit."

She put the tissue in a dry saucepan and placed the pan over 200 degrees of heat. First she placed the pan over an ordinary surface unit, and the tissue shriveled into dark brown ash. Then she did it over a modern automatic heat-controlled "surface unit," and the tissue didn't even get scorched.

Ten other women with a flair for dramatic visual demonstration took prizes in the competition, which drew entries from home economists, home service girls, and instructors in public utilities, colleges, schools, and food processing companies in 40 states and three Canadian provinces.

Prize-winning contest entries, together with winning entries in an appliance range salesmen's contest, will be published by Robertshaw in a booklet designed to help appliance salesmen, home economists and homemakers demonstrate the advantage of "Automatic Range Top Cooking."

Unemployment predicted at 5 million by spring

Businessmen are being warned by government economists not to expect the spring slump to improve much before next fall.

Government labor experts say privately that unemployment, now running at better than 3.3 million, will climb by 50 per cent or more —to almost 5 million— this spring.

But while the number of workers without jobs will rise rapidly in the next two months, the salaries of those still working will also continue to rise.

Increased government defense spending—up about $1 billion over the current year—will begin to take hold this summer and by fall business activity should again be on the rise, the economists say.

One government distribution expert says the spring slowdown will have these effects on business firms:

There will be fewer customers. They will be more price conscious. There will be more demand for credit, but some families may have trouble paying their bills. Consumers with money to spend will be hesitant, tending to save rather than buy.

Many costs will continue to rise slightly, although the rise will not be as steep as in 1957 and the number of articles involved will not be as high.

A recent survey of manufacturers, many in consumer goods lines, showed they expect prices to remain anywhere from steady with 1957 to up by 5 per cent; sales to remain steady to down by 15 per cent; wages to rise by about 5 per cent; and profits to drop by about 17 per cent. Thus a tighter squeeze on business profits is in sight.

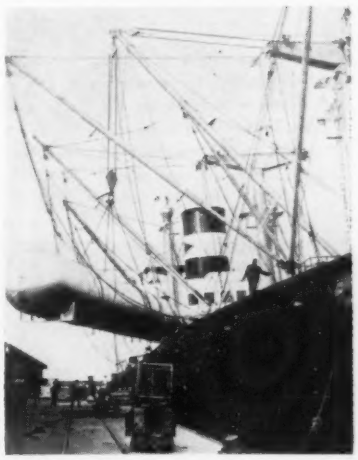
American-Standard water heater passes tough test

During a recent demonstration of hot water capacity, a production model American-Standard 40-gal. gas water heater produced sufficient hot water to satisfy a shower, a dishwasher and an automatic washing machine in use simultaneously over a 30-minute period.

First, hot water needs of a typical four-person family were determined with an American-Standard "Selection Guide." This handy reference booklet facilitates selection of the proper size gas water heater through accurate computation of hot water needs.

The water heater was connected to a shower and a modern automatic dishwasher and clothes washer. It was estimated that over a 30-minute period of continuous operation, the shower would require 34 gal. of 100-110° water (achieved partially by a built-in booster); and the automatic clothes washer, 17 gal. of 140-160° water. The water heater was set for 160° water, and at this temperature recovered 33.6 gph.

After 10 minutes of operation, water in the dishwasher was at



A Dallas Tank Co. LPG storage unit of 30,000 wg capacity is being loaded for overseas shipment by the company's new export outlet for LPG and NH_3 equipment. The export division of the Weatherhead Co. will export the complete Dallas line.

165° and in the washing machine, 130°. After 20 minutes, shower water was at 110° and dishwasher water, still at 165°.

At the end of the 30-minute period, shower water was still at 110°; dishwasher water, at 165°; and clothes washer water, at 125°. Since the wash cycle for the automatic washer had been completed, 125° water was considered adequate for rinsing purposes.

Despite the tremendous strain on hot water capacity, the American-Standard water heater had delivered 57 gal. of usable hot water in 30 minutes.

Iron Fireman acquires Timken division of Scaife

The Timken silent automatic division of the Scaife Co., Pittsburgh, has been acquired by Iron Fireman Manufacturing Co., Cleveland, it is announced. Timken manufactures and distributes residential heating equipment, including gas-fired burners, furnaces and boilers.

Iron Fireman also announced that headquarters of the Timken division will be moved to Cleveland and that it will begin manufacture of the Timken line of heating equipment as soon as arrangements can be completed.

Lewis J. Cox, Iron Fireman president, announced that it is the company's plan to continue the Timken line of products and dealer organization as a separate division of Iron Fireman.

More young people to work in coming years

Businessmen will be hiring more young people (under 25) and more part-time workers in the years ahead.

New studies and forecasts prepared by the U. S. Department of Labor point up these trends concerning the hiring of workers during the next 10 to 15 years:

A large increase in the number of young people from 16 to 24 years old available as salespeople and as office help.

An increasing number of middle-aged women will seek part-time work.

More men over 65 and more women over 62 will take on part-time jobs (due to liberalization of social security rules).

The coming rise in the number of young people looking for jobs is due, of course to the big gains in the national birth rate during the 1940s and 1950s.

Competition among them will be sharp, so businessmen will have a wide choice in selecting their new workers. But they'll be inexperienced, and will require training. The many adult women that will reenter the labor market also will require some training.

Servel refrigerator assets sold to Whirlpool Corp.

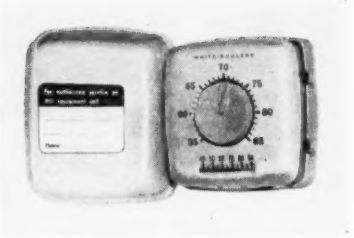
Whirlpool Corp. has purchased from Servel Inc. for cash, all facilities, including patents, property and equipment, relating to the Servel gas refrigerator and ice maker, it was announced recently by Elisha Gray II, Whirlpool president.

The Servel assets sold to Whirlpool included 24 acres of land, buildings with a total floor space of 750,000 sq ft, an adjoining four acre parking lot, and specialized machinery, equipment, fixtures, tools, dies, jigs and inventory.

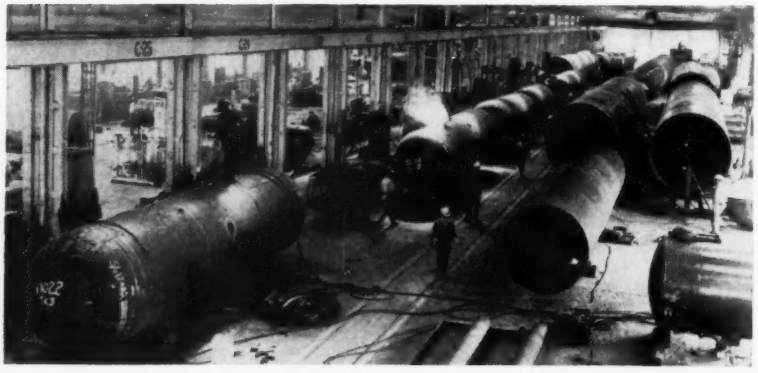
The cash sale price was approximately $6.5 million.

Mr. Gray stated that Whirlpool was already manufacturing gas appliances comprising combination washer-dryers and ranges, and that a gas water heater and a gas incinerator are being engineered. The addition of a gas refrigerator will make possible an all gas line of major appliances.

With the completion of the sale to Whirlpool, Servel still retains property in Evansville, Ind., with a total floor space of more than 500,000 sq ft and a book value of $1.5 million. Duncan C. Menzies, president, said that half of these remaining assets are expected to be sold for cash by the first part of April.



In order to help assure additional business for heating and air conditioning dealers, White-Rodgers Co. has initiated a new service in the form of a "sales builder" sticker. The sticker is headed, "For authorized service on this equipment call . . .". The installer fills in the dealer's name, address and phone number and places the sticker inside the thermostat's hinged cover.



More than a dozen tank-truck transports are being rushed to completion at one of Delta Tank Manufacturing Co. Inc.'s production bays at its home plant in Baton Rouge. Size of transports shown range from 7500 to 10,400 gal. capacity.

Arden urges salesmanship to help sell appliances

The home appliance industry must counter indifference by greatly increased salesmanship coupled with more automatic convenience features in new appliance models, according to Thomas T. Arden, president and chief executive of Robertshaw-Fulton Controls Co. "Homemakers will buy new cooking ranges, clothes washers and dryers, water heaters, and air conditioners when they realize theirs are out-dated and outmoded."

Mr. Arden believes economically-produced transistors to replace vac-

Helps Chicago Convert to Propane Economy...

LPG SERVICE TRUCK

CONVERSION OF HEAVY STREET MAINTENANCE AND SANITATION EQUIPMENT to more economical propane gas operation presented a re-fueling problem to the City of Chicago. The answer was an efficient, low-cost Columbian LPG Service truck tank which could swiftly reach the equipment wherever it was operating and service it on the spot.

County and municipal departments throughout the country can find the same answer to mounting operating costs of heavy equipment. Propane gas presents a considerable economy — and a single Columbian Service truck tank can supply many pieces of equipment daily, over a wide area. This offers a new and profitable market for LPG distributors.

Chicago's new 2,500 water gallon capacity Columbian truck is a fully skirted, single barrel unit, equipped with both rotary liquid level and magnetic float gauges, ICC lights and wiring, pump, meter, hoses and fire extinguishers. Similar units, from 1,200 to 2,500 w.g. capacity, complying with all state and national regulations, are available promptly from Columbian.

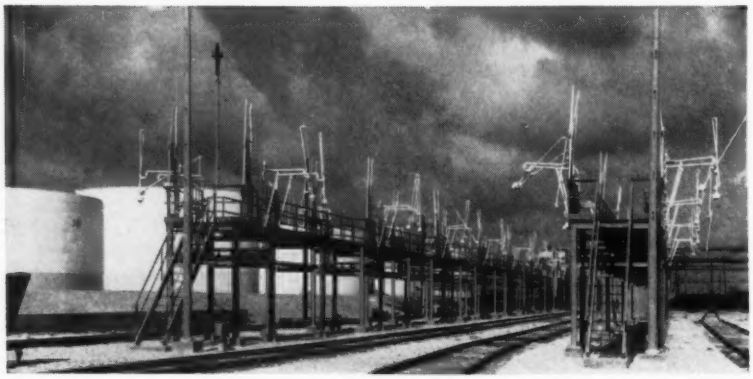
For further information write

COLUMBIAN STEEL TANK COMPANY

P. O. Box 4048-C Kansas City, Mo.

STEEL, Master-crafted by Columbian... First for Lasting Strength

Reprints of this Advertisement available on request.



Forty-two tank cars can be loaded at one time at Esso Standard Oil Co.'s refinery in Baton Rouge, La. The new LPG loading rack has an air-conditioned control house similar in many ways to the control rooms of large refining units.

uum tubes will open the way for developing more electronic home appliances.

In his annual message prepared for company sales personnel, he announced plans for constructing a new multi-million dollar research and development center near a major east coast city. Several locations are under consideration, he said, and construction was expected to begin early in 1958. The company maintains, in addition to the projected center, research and development laboratories in Anaheim, Calif., and Irwin, Pa.

Expenditures in 1958 for product development and control research are expected to increase substantially.

Bright future seen for Roper since merger

Officials of the Geo. D. Roper Corp. and its parent firm, the Florence Stove Co., Kankakee, Ill., predict a bright future for Roper.

Spokesmen for the two gas range manufacturers, which merged last October, summed up results of the merger and announced plans for the future at Roper's annual sales conference held recently in the Hotel Kankakee. Over 100 sales representatives and officials attended.

J. H. Wright
President

E. C. Sorby
Vice president

Stanley H. Hobson, chairman of the board, and John H. Wright, president of Roper and Florence, stressed that the gas industry stands to benefit from the merger.

Backing up their views at the sales conference were Roper vice presidents E. Carl Sorby and N. C. Kreuter.

Officials of the two companies pointed to several factors which, they said, add up to a greatly strengthened position in the hotly competitive appliance field.

Availability of greater manufacturing facilities was emphasized. The field sales organization has been strengthened also, it was pointed out. Stepped-up advertising, promotion, sales training and service training programs for retailers are also planned. The largest product research and development program in Roper history is to be undertaken in 1958, officials said. Roper's network of warehouses across the country will also be expanded, and its service organization will be further enlarged. It will be headed by Stanley Fowler of Roper.

LPGA publishes "You and Civil Defense"

A plan for linking the nation's L. P. gas dealers with their local civil defense organizations has been developed by the Liquefied Petroleum Gas Association. This plan for providing emergency gas fuel service is outlined in a new 16-page illustrated booklet, "You and Civil Defense."

The booklet suggests that every L. P. gas dealer volunteer his services to his local CD organization. It also outlines the equipment and services he may be asked to supply and suggests how local industry committees may be formed.

Copies of this booklet are available at $1 each from the LPGA, 11 S. LaSalle St., Chicago 3.

Norco gas refrigerator availabilities announced

Norman H. Lee, Norco president, has announced the following availability dates for the 1958 line of Norco gas refrigerators: Model 584, 4 cu ft table top type, available March 1; Model 5865, approximately 7 cu ft, available March 15; Model 5895, approximately 10 cu ft, available June 1; and Model 5812, approximately 12 cu ft, available September 1.

All of the Norco models have been designed in accordance with AGA specifications and formal AGA approval is expected to coincide with availability.

Final plans are now being completed for placing in operation service and warehouse facilities on a national basis and key service personnel were extended invitations in February to attend regional service schools on the new refrigerators.

Further information may be obtained by writing Norco Inc., 5656 W. Washington Blvd., Los Angeles 16.

Locke Stove purchases Moore gas heater division

Locke Stove Co., Kansas City, Mo., has purchased the Moore gas heater division of Conlon-Moore Corp., Joliet, Ill., and will continue the manufacture and sale of Moore's gas heaters in addition to its own Warm Morning heater and incinerator lines.

According to E. M. Douthat, president, Locke Stove, arrangements for the purchase of the Moore heater division from the 100-year-old corporation were completed during December. Under the terms of the purchase agreement, Locke will acquire all tools and dies for Moore's gas heaters and the right to manufacture and sell the line.

In 1957 the Moore's gas heater

Never before has Chevy been so right for liquefied gas distributors!

Here's a truck specially designed to take to your kind of work like a duck takes to water! It's Chevrolet for '58 with new hustle, muscle and style that mean money in your pocket!

As you can see, Chevy's a honey of a truck this year, and that handsome, broad-shouldered '58 appearance only hints at the host of new and improved features that are ready to put you dollars ahead in the years to come. *Here's a truck ideally suited for your line of work.* In styling, for instance, Chevrolet for '58 has what it takes to build your business prestige every day in the week: new dual headlamps, new massive grille, newly contoured hood and fenders, new cab beauty, to mention just a few innovations.

And what workers these new Chevrolet middleweights are! There's extra power to do more work faster from new, more durable Taskmaster V8's . . . or from a new version of the famed Jobmaster 6, standard in Series 60. *High* G.V.W.'s—up to 14,000 lbs. in Series 40, and up to 21,000 lbs. in Series 50 and 60 models when equipped with heavy-duty options—assure big, profitable payloads. And you'll have the right chassis components for your job: husky parallel-design frame, hefty rear axle and the proper springs and transmissions to meet your needs precisely.

There are many such reasons why Chevy's never been *so right* for your work—many more reasons why you'll want to see your Chevrolet dealer soon! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET

NEW CHEVROLET TASK·FORCE 58 TRUCKS

line was completely restyled and now includes models ranging from 20,000 to 85,000 Btu input for use with all types of gas.

Locke Stove Co. has announced plans to work through Moore's existing sales force and distributor and dealer organization, wherever possible.

Southern Propane buys Hydro Gas Companies

The Hydro Gas Companies, headquartered in Tallahassee, Fla., have been purchased by Southern Propane Properties, Inc., Jesup, Ga., for an undisclosed sum.

According to James L. Harper, president of Southern Propane, acquisition of the Hydro Gas Companies represents a major expansion and will extend Southern Propane operating territory into southwestern Georgia and the Tallahassee and Quincy areas of north Florida.

FTC clears Insto-Gas of illegal leasing charges

Charges that the Insto-Gas Corp., Detroit, Mich., unlawfully used tying contracts in connection with the leasing of propane cylinders and the sales of related equipment have been dismissed by the Federal Trade Commission.

The FTC dismissed the case on the basis of a hearing examiner's recent initial decision ordering dismissal of the complaint due to lack of proof.

The complaint had charged that Insto-Gas violated Section 3 of the Clayton Act by leasing its cylinders on condition that they be refilled only with its gas and that lessees use with the cylinders only Insto-Matic equipment and appliances.

Rockwell buys new plant in Guelph, Canada

Rockwell Manufacturing Co. of Canada, Ltd., has purchased a new 50,000 sq ft plant at Guelph, Ont., recently vacated by Hammond Manufacturing Co. of that city, W. F. Rockwell, Jr., president has announced.

This purchase will enable Rockwell of Canada to meet increasing demand throughout the Dominion for the wide variety of products manufactured in its existing 92,000 sq ft plant at Guelph, Mr. Rockwell said.

Rheem will make and sell in Belgium and Canada

Rheem Manufacturing Co. has completed new arrangements for making and selling Rheem products in Belgium and Canada, according to A. Lightfoot Walker, president. The new agreements bring to 18, the number of plants making Rheem products in 12 nations abroad.

The new international agreements call for manufacture and sale in Canada of Rheem automatic storage water heaters and manufacture and sale in Belgium of Rheem water heaters and inner-protective coatings for steel drums and pails.

In the new Canadian venture, Rheem automatic storage water heaters will be made and sold under an agreement between Rheem-International Ltd., a new subsidiary sales agency in Toronto, and Rheem-Canada Ltd., manufacturing affiliate in Hamilton, Ont.

The Belgian agreement licenses Travail Mecanique de la Tole, Brussels metal fabricating firm, to make and sell Rheem water heaters and interior drum linings.

John Wood reviews 1958 marketing campaigns

Even though overall industry sales fell during 1957, John Wood Co. increased its unit volume of automatic water heaters and home heating equipment by a substantial amount. At the heater and tank division's three-day annual sales meeting at Seaview Country Club, Absecon, N. J., W. Glen Oslin, vice president and general sales manager, said, "We have provided an even more effective program for 1958 to assist our customers in getting a better share of available business in their marketing areas."

"In 1958, our distributors and their customers are being offered the most comprehensive sales, advertising and promotion programs that we have ever conducted. These programs are designed to be put into effect on the local level with a minimum of effort and expense to our customers, allowing them to concentrate on sales targets," Mr. Oslin told the 68 members of the firm's national sales force attending the meeting.

American-Standard starts air conditioning promotion

"Operation Beachhead" is a promotion being launched by American-Standard air conditioning division to stimulate the widest possible use of central air conditioning as the best means of cultivating substantial future sales.

The promotion is based upon the fact, revealed by the DuPont Survey, that nothing sells air conditioning like air conditioning. To assist dealers and distributors in establishing a "beachhead" of immediate new customers, greatly reduced price levels have been established.

Miles W. Boekeloo (second from right), Michigan district sales manager of the Ruud Manufacturing Co., is congratulated by A. B. Cameron, company president, for being the winner in the firm's commercial gas water heater sales contest during a 12-month period. At the extreme left is R. N. Spear, commercial sales manager, while at the extreme right is Fred Peters, sales assistant to Mr. Boekeloo.

trainload?
carload?

whatever your need

we want your order...

so **REACH,**
L.P.G. MAN

Anchor has the facilities to meet your need, whatever or wherever it is. And moreover, Anchor wants your order . . . wants you as a customer. They'll go out of their way to see that you are given every service humanly possible. Anchor's nation-wide facilities are of the most modern. Anchor men are skilled and experienced. There is one near you. So, reach, L.P.G. man, for that phone. Call Anchor in Tulsa, CHerry 2-7261.

ANCHOR

PETROLEUM COMPANY • TULSA

SALES OFFICES: Toledo, Sioux City, St. Paul, Shreveport, Hattiesburg, Gulfport, Savannah, Oklahoma City, Houston, Midland, Long Beach, San Francisco, Seattle, Calgary

NEWS NOTES

Shipments by manufacturers of automatic gas water heaters in 1957 topped the 2½ million mark and reached the third highest total on record, GAMA announces. The 1957 figure was 7.9 per cent below the 2,762,100 shipped in 1956. That figure is the record high.

Built-in models accounted for nearly 10 per cent of 1957 shipments of gas ranges by manufacturers, GAMA shows. A year earlier the corresponding figure was 7.5 per cent. The year's total for both free-standing and built-in ranges was 1,970,900, a 9.4 per cent decline from 1956 shipments of 2,176,200.

The board of directors of Suburban Gas Service Inc., one of the nation's largest distributors of L. P. gas, voted to split the outstanding common stock on a three-for-two basis on January 14. The stock-split is subject to shareholders' approval of a resolution adopted by the board calling for an increase in the number of authorized common shares from 500,000 to 1 million.

Charles Lockhart has been appointed central Texas factory representative for the Tuck-Aire Furnace Co. of San Francisco, manufacturers of warm air furnaces.

The Cleveland Heater Co. announces the appointment of the Double I Supply Co., Shawnee and Adams Sts., Kansas City, Kansas, as sole distributor for REX automatic water heaters in the Kansas City trading area.

Appointment of Gough Industries, Inc., as Los Angeles metropolitan area distributor for Utility Appliance Corp. and its Gaffers & Sattler line of home comfort appliances is announced by John L. Hall, Southern California sales manager. Products handled by Gough will include Utility heating, air conditioning and refrigeration equipment.

Ruud Manufacturing Co. will specifically sponsor a dish washing contest in the 1958 Mrs. America Homemaking contest, it is announced by A. B. Cameron, president.

Under an exclusive licensing agreement, Metalbestos gas vent pipe and fittings will be manufactured and distributed in Canada by Selkirk Metal Products Ltd., Winnipeg, Manitoba, and Selkirk Metal Products (Eastern) Ltd., Brockville, Ont., Canada, it is announced by Alan Kinkead, president of the William Wallace Co., Belmont, Calif.

A 45,000 gal. capacity storage refinery tank, fabricated by Master Tank & Welding Co., was shipped recently to Southern Minerals Corp. in Corpus Christi, Texas, as part of that company's current expansion plans. The tank, measuring 110 ft in length, with a 110 in. ID, will be used for propane storage at the coastal refinery plant.

A majority of small businessmen overwhelmingly favor aggressive government action to control trading stamp plans, according to a recent poll.

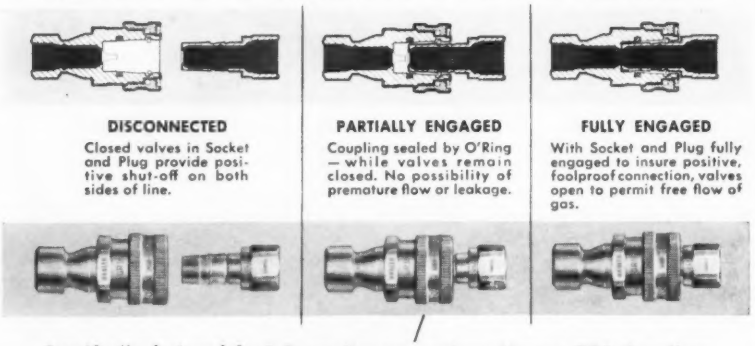
Specifically Designed

FOR FOOLPROOF L. P. GAS CONNECTIONS

HANSEN

3-GRL 1621

QUICK-CONNECTIVE COUPLINGS



DISCONNECTED
Closed valves in Socket and Plug provide positive shut-off on both sides of line.

PARTIALLY ENGAGED
Coupling sealed by O'Ring — while valves remain closed. No possibility of premature flow or leakage.

FULLY ENGAGED
With Socket and Plug fully engaged to insure positive, foolproof connection, valves open to permit free flow of gas.

Specifically designed for L.P. gas line connections, Hansen GRL Couplings completely eliminate the hazard and annoyance of leakage or spillage of gas.

To connect (no tools required), you merely push the Plug into the Socket — all the way. To disconnect, just turn sleeve — Coupling instantly and automatically shuts off both ends of line.

Sockets available with ¼" female pipe threads. Plugs available with ⅜" female pipe threads.

Write for descriptive literature

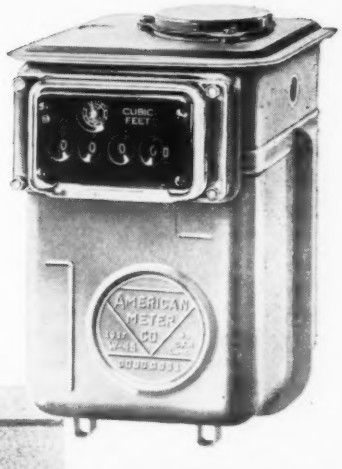
* APPROVED BY UNDERWRITERS' LABORATORIES

SINCE 1915 — QUICK-CONNECTIVE FLUID LINE COUPLINGS

THE HANSEN MANUFACTURING COMPANY

4031 WEST 150th STREET • CLEVELAND 11, OHIO

AMERICAN®
metered service cuts costs and helps build sales faster.



W-45-LPG Welded Steelcase Meter
A new approach to meter maintenance. Adequate capacity for average homes without central heating. Light weight, sturdy, economical. Rated capacity 45 cfh propane at 1/2-inch w.c. differential — 5 psi working pressure — 1/2-inch F.P.T. connections.

American® LP-Gas meters simplify deliveries — costly cross-hauling and time-and-money wasting out-of-gas deliveries are stopped once and for all when metered service takes over. These sturdy, compact meters make possible increased storage on customers' premises and reduce multi-service installation costs.

LP-Gas meters bring "utility-type" service to your customers — build satisfaction and confidence in your service and help you sell more gas and gas appliances.

Economical Welded Steelcase and Aluminumcase meters provide the accuracy, dependability and low maintenance cost that have made American equipment the standard of comparison for more than 120 years.

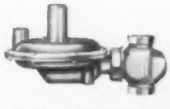
AL-110-LPG Aluminumcase Meter
Provides accurate measurement from pilot burner to full capacity loads. Handles small commercial loads and medium-sized homes with heating. Compact, light weight, die-cast aluminum alloy body construction provides high resistance to impact damage. Rated capacity 110 cfh propane at 1/2-inch w.c. differential — 5 psi working pressure. Available with 3/8-inch, 1/2-inch or 3/4-inch F.P.T. connections.

Large Ironcase Meters

Meter Provers

Wet Test Meters

Welded Steelcase Meters


Reliance Regulators

AMERICAN METER CO — MEASUREMENT ENGINEERS

AMERICAN® METER COMPANY
INCORPORATED (ESTABLISHED 1836)

GENERAL SALES OFFICE: Philadelphia 16, Pennsylvania
Albany • Alhambra • Atlanta • Baltimore • Birmingham
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Kansas City • Los Angeles • Minneapolis • New York
Omaha • Pittsburgh • San Francisco • Seattle • Tulsa
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SUPPLIERS TO THE GAS INDUSTRY for Ironcase, Timed Steelcase, Aluminumcase and Welded Steelcase Meters • American-Westcott Orifice Meters • Instruments • Reliance Regulators • Apparatus • Valves

BPN ASSOCIATIONS

Northwest makes final plans for convention

Industry speakers on costs, new market development and the national industry picture have been signed to address the Northwest LPGA district convention at the Winthrop Hotel, Tacoma, Wash., March 28-29.

The program, as outlined by convention chairman, W. J. Kraus, is headed by LPGA President Talmage Lovelady who will give his viewpoint on the industry's national issues.

Speaking on market development will be W. R. Sidenfaden, Suburban Gas Service Inc., Upland, Calif. J. C. Yeomans of Multnomah Fuel Co., Portland, Ore., will be the cost-of-doing business speaker.

The session will open at luncheon March 28 with Stary Gange, noted West Coast businessman-speaker, as the keynoter. His topic will be "Ignorance is Not Bliss." Mr. Gange, who is vice president of Pacific Olive Co. and an official of numerous civic and industrial groups, devotes more than half his time to talks on Americanism.

The Oregon LPGA will meet on March 29. About 300 conventioneers from five states and Canada are expected.

Michigan LPGA attended by 250 L. P. gasmen

Two hundred and twenty-five L. P. gasmen and their wives attended the 11th annual Michigan LPGA convention and trade show at the Hotel Olds, Lansing, Mich., January 19-21.

Erwin Kleinmann of Dearborn Stove Co. was the luncheon speaker and used as his topic, "Gas is Best." The gist of the speech was that the L. P. gas dealer should not wait for the customer to tell him that gas is best. The dealer has the knowledge, the incentive, and should be convinced of the fact, so he should sell the customer.

A service school by R. Ackerman of Robertshaw-Fulton Controls Co., and the installation and venting of space heaters presented by Harry E. Thompson of the Ohio Foundry Co., were well attended.

Max Fetty, Delta Tank Co., entertained and informed with his banquet topic "Are You Having Any Fun?"

Vern Becker, Port Huron, was elected president for the ensuing year. Russell Mueller Durand, is vice president; and J. O. Gower, Michigan Bottled Gas Co., Eureka, is secretary-treasurer. New directors are R. Lowe, J. Ala, and L. Overholt.

Noted college professor to keynote national meet

Dr. Norman N. Royall Jr., professor of mathematics and physical science at the University of Kansas City, who mixes humor and philosophy with a key message on the coming industrial revolution, will keynote the national LPGA convention May 4 to 7 in Chicago.

Dr. Royall's topic concerning the impact of the coming industrial revolution on the L. P. gas business ties in with LPGA's 27th annual meeting theme: "Opportunities Unlimited."

The keynote speech will be made at the opening luncheon session, Monday, May 5, at the Conrad Hilton Hotel, according to convention chairman J. D. Stone.

REA resolution passed at LPGA board meeting

A resolution calling for support from the entire industry for the federal bills which will help curb REA expansion and the cut-rate financing plans used by local power co-operatives headed a busy docket for the directors of the LPGA who met January 29 at Phoenix, Ariz.

At the one-day session with President Talmage Lovelady of Worland, Wyo., presiding, the board adopted a budget of approximately $477,000 to finance activities during the fiscal year starting March 1.

A handbook on safety legislation was approved for distribution to industry committees facing legislative problems.

After voting 208 new members into the association the total roster stood at 2858 companies and individuals.

A new set of procedures for inspecting and maintaining tank car dome fittings was approved. After minor changes by the transportation committee the procedures will be distributed to railroads and dealers.

A request from western Canada's district for a change in its dues-paying status was approved. The Canadian plan is to eventually set up a staff office similar to that serving eastern Canadian members.

Two directors were elected to fill vacancies. They are R. D. Lane, Propane By Lane, Inc., Kellogg, Idaho, and J. Richard Verkamp, The Verkamp Corp., Cincinnati, Ohio.

The board's next session will be in Chicago May 4, the opening day of the national convention and trade show.

AGA names Harold Walker to new position

Harold S. Walker, Jr., has recently been named as assistant to the managing director of the American Gas Association. He was formerly secretary of AGA, a position he has held since early last year. He joined the AGA staff early in 1955 as secretary of the general management section.

From November 1954 to May 1955, Mr. Walker was associated with Lit Bros. division, City Stores, Inc., Philadelphia, as head of customer and merchandising service for home furnishings, appliances, housewares and furniture.

Compressed Gas Group elects Olson president

A. R. Olson, Suburban Propane Gas Co., Whippany, N. J., was elected president of the Compressed Gas Association, Inc., at the association's 45th annual meeting held January 20-22 in the Waldorf-Astoria hotel, New York City.

Other new officers include Claude E. Monlux, Linde Co., division of Union Carbide Corp.,

CHANGE TO TEXACO NOW...BE SURE OF DEPENDABLE SUPPLIES AND A SOLID FUTURE

The gallonage figures (above) of estimated consumption indicate there's a big future in LP-Gas. Can you count on a dependable *supply* to meet the growing demand?

You *can* be sure if you are a Texaco LP-Gas Distributor. Texaco is one of the largest producers, and has a new fleet of tank cars to insure fast, efficient delivery.

A solid future is one of the advantages of being a Texaco Distributor. Proof: 683 distributors of Texaco products have been with us for 20 years or more—and many others for as long as 45 years.

5 reasons why it pays to be a TEXACO LP-Gas Distributor

1. A product of highest quality.
2. Dependable and efficient delivery, in a new fleet of tank cars — from 25 strategically located production areas.
3. Immediate acceptance. Texaco LP-Gas carries the nationally-known, famous trade-mark, Texaco.
4. One of the largest producers of LP-Gas, The Texas Company is the only petroleum company to build up successful distribution of its products in all 48 states.
5. Profitable and proved sales policies. Texaco markets only through independent distributors.

Some areas are still open for a sound and profitable business with Texaco LP-Gas. Let us tell you how.

TUNE IN . . . Metropolitan Opera radio broadcasts Saturday afternoons, ABC.

TEAM YOUR NAME with Texaco and profit . . . *faster!* Call or write Texaco today . . . The Texas Company, LPG Sales Division, P. O. Box 2420, Philtower Bldg., Tulsa, Okla., DIamond 3-4101 — 929 South Broadway, Los Angeles 15, Cal., TRinity 9271.

TEXACO LP GAS

An important announcement to OEMs...

100% SHUT OFF!

BASOTROL

with

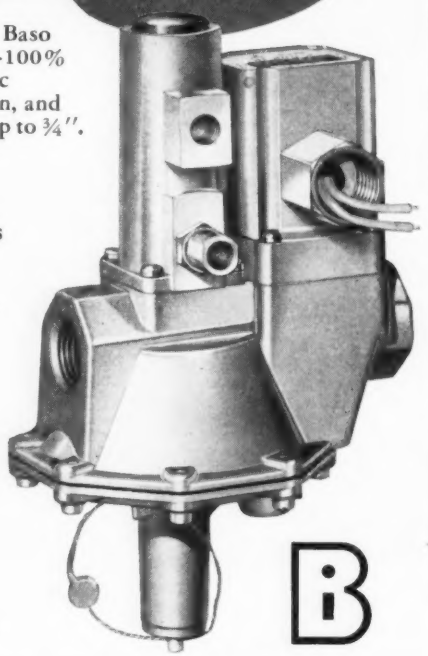
AUTOMATIC PILOT | MAGNETIC VALVE | PRESSURE REGULATOR

New 100% shut off extends even further the usefulness of these compact units. Each retains the Baso automatic pilot (100% or non-100% shut off), the Basotrol magnetic valve for main burner operation, and pressure regulator. Pipe sizes up to ¾".

The Basotrol magnetic valve section is spring loaded, provides strong closing and sealing forces, is quiet, and has a molded rubber valve disc. The valve is available in two voltage types for 115 volt and 20 volt, 60 cycle, a.c.

The reliable Baso automatic pilot is thermocouple operated and prevents gas reaching the main burner during the resetting cycle. The Baso valve snaps closed if the pilot burner should be extinguished, shutting off gas from the main burner.

Both the Basotrol magnetic operator and the Baso automatic pilot assemblies are replaceable in the field.



MODEL	INLET AND OUTLET	OUTLET PRESSURE RANGE		PRESSURE DROP CAPACITY @ 1" W.C.	REGULATION CAPACITY	
		MAX.	MIN.		MAX.	MIN.
GAT*	½" x ⅜"	4"	2"	118,500	116,000	11,600
GAW	½" x ⅜"	4"	2"	118,500	116,000	11,600
GDT	½" x ½"	4"	2"	146,000	145,000	14,500
GDT200*	½" x ½"	4"	2"	146,000	145,000	14,500
GDX4	½" x ½"	4"	2"	177,000	170,000	17,000
GDX4 ( ) 200*	½" x ½"	4"	2"	177,000	170,000	17,000
GDX5	¾" x ¾"	4"	2"	203,000	192,000	19,200
GDX5 ( ) 200*	¾" x ¾"	4"	2"	203,000	192,000	19,200

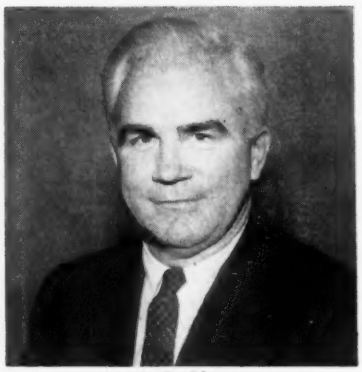
*100% shut off power units.

For more information about Basotrol, *WRITE*

BASO INC.

Dept. SB-2 • MILWAUKEE 1, WISCONSIN

(Formerly Milwaukee Gas Specialty Company)



A. R. Olson
President

New York, 1st vice president, and George C. Cusack, Pure Carbonic Co., a division of Air Reduction Co., Inc., New York, 2nd vice president. Franklin R. Fetherston was reelected secretary-treasurer.

Dealer group elects Van Langley president

A dozen dealers in the "Bright Leaf Tobacco Belt," organized as the "Wilson L. P. Gas Association," elected Van Langley president for the ensuing year at a January 9 meeting held in Wilson, N. C. Mr. Langley is with Johnson Cotton Co. of Wilson, Inc.

Named vice president is Lewis Cooper, Suburban Rulane Gas Corp., of Wilson, and Ray Boyette, Blue Flame Gas Co., Kenly, N. C., was elected secretary-treasurer.

Following the election of officers, plans were discussed for joint action by association members for promoting sales of L. P. gas and gas appliances in the area covered by members. In addition to the 12 member dealers, there are 14 associate members, according to George T. Cary, Greensboro, N. C., representative of Empire Stove Co. of Belleville, Ill.

New L. P. gas organization launches PR campaign

The California-National L. P. Gas Council, a newly created organization of butane-propane producers and retailers and manufacturers of gas appliances, has launched an extensive public relations campaign.

The Council has retained Herbert Cerwin & Staff, of San Francisco and Los Angeles, to plan and carry on the campaign.

Purpose of the new organization is to "acquaint the public with the advantages of liquefied petroleum gas as a domestic fuel in areas beyond the natural gas mains."

At the same time, the industrial and agricultural uses of butane and propane will be stressed during the campaign.

There are more than 500 L. P. gas dealers in California and their sales exceed $45 million a year, with approximately $4 million worth of appliances equipped for L. P. gas use being sold each year.

Herbert Cerwin will direct the campaign from San Francisco, with Gerald Noble as the account executive.

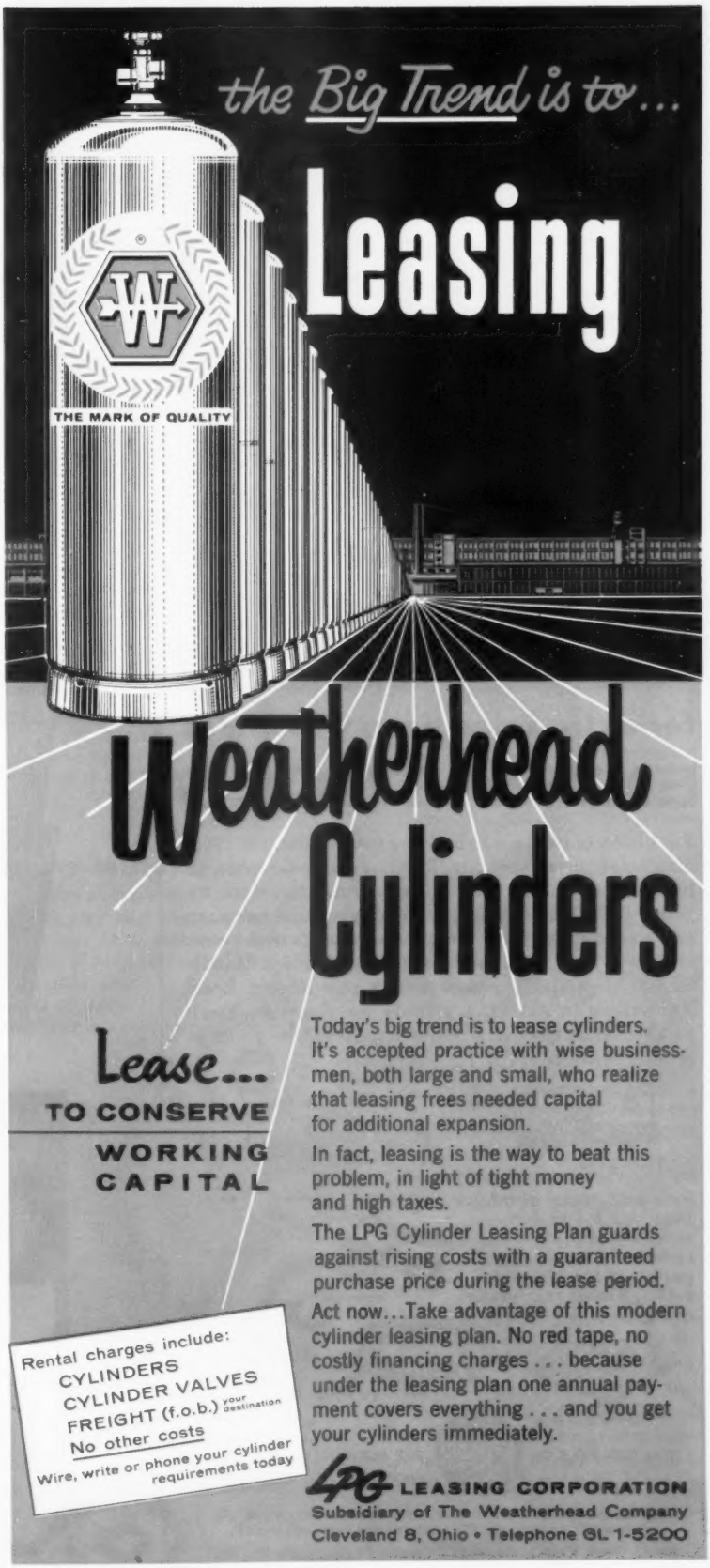
Happ is president of Chicagoland Institute

At a recent meeting of the Gas Institute of Greater Chicagoland, Inc., held in Chicago, the following officers and directors were elected for a one-year term commencing Jan. 1, 1958:

Jerome P. Happ, North Shore Gas Co., president; Leonard E. Nyberg, Western Propane Co., 1st vice president; James R. Bass, Bass Bottled Gas Co., 2nd vice president; Joseph Risner, Norge Sales Corp., 3rd vice president, and Arthur Nepstad, Industrial Specialties Co., secretary-treasurer.

Directors of the group are Charles G. Homuth, True Blue Oil Co.; Mr. Happ; R. A. Miller, Miller Dri-Gas Co.; Leonard E. Nyberg, Western Propane Co., and R. T. Westbrook, Wesco Gas & Appliance Co.

The corporate purpose of the Institute is "to promote the sale and use of gas in the greater Chicagoland area as domestic, commercial and industrial fuel and to aid the promotion and selling plans of its members; to cooperate with the various industry gas associations in matters relating to the promotion and sale of all natural, manufactured, mixed and L. P. gas; to further understanding and cooperation between members of the Institute."


the Big Trend is to...
Leasing
THE MARK OF QUALITY
Weatherhead
Cylinders
Lease...
TO CONSERVE
WORKING
CAPITAL
Today's big trend is to lease cylinders. It's accepted practice with wise businessmen, both large and small, who realize that leasing frees needed capital for additional expansion.
In fact, leasing is the way to beat this problem, in light of tight money and high taxes.
The LPG Cylinder Leasing Plan guards against rising costs with a guaranteed purchase price during the lease period.
Act now...Take advantage of this modern cylinder leasing plan. No red tape, no costly financing charges . . . because under the leasing plan one annual payment covers everything . . . and you get your cylinders immediately.
Rental charges include:
CYLINDERS
CYLINDER VALVES
FREIGHT (f.o.b.) your destination
No other costs
Wire, write or phone your cylinder requirements today
LPG LEASING CORPORATION
Subsidiary of The Weatherhead Company
Cleveland 8, Ohio • Telephone GL 1-5200

for extra sales, tie in with these

EXTRA TOOLS

For plenty of local use in building your business in 1958, direct mail, newspaper ads, TV films and radio spots, all handled for you by your Rheem distributor, work together like a perfect combination of your best salesman and an attractive showroom in a prospect's own home.

This year do more than just provide Service. Handle Rheem dependable products and put Rheem Local Advertising in Action. It's ready for you now. You'll be amazed at the extra business that will be yours at profitable prices . . .

Have your Rheem distributor show you the new Rheem merchandising plans and material . . . have him tell you about the 1958 timed selling events for growth and security.

YOU CAN RELY ON Rheem THE BIG NAME IN COMFORT PRODUCTS FOR THE HOME

water heaters, steam and hot water boilers, central air conditioning, warm-air furnaces, plumbing fixtures and water softeners

South Gate, Calif. • Houston • Chicago • Sparrows Pt., Md.

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PUBLICATIONS

Foremost IN THE FIELDS THEY SERVE

CALL A CHILTON MAN

CHILTON COMPANY
56th & Chestnut Streets
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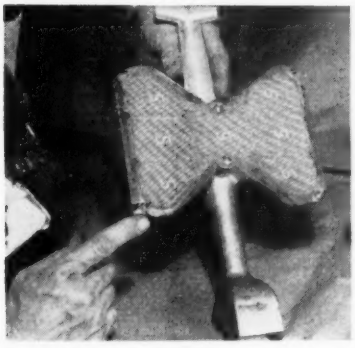
IN PRODUCTS AND TRADE LITERATURE

For further information on items reviewed in this section use the convenient post-paid Readers' Service Cards on pages 83, 84



Radiant heat broiler

A revolutionary gas broiler that operates by radiant heat is introduced by Hardwick Stove Co. It is said to eliminate preheating, cut cooking time in half and require only half the gas of conventional broilers.

Circle 1 on Readers' Service Card

■

Washer, dryer package

A gas dryer provides a special wash 'n wear cycle with an automatic 10-minute air cooled fluffing period at the end of the drying cycle to prevent wrinkling. Preceding this cool-off period, air temperature is 165°. In the normal drying cycle for regular fabrics, infinite heat selection is thermostatistically controlled with six automatic settings. A matching 1958 RCA Whirlpool Corp. model automatic washer provides five wash water temperatures and two agitation speeds.

Circle 2 on Readers' Service Card

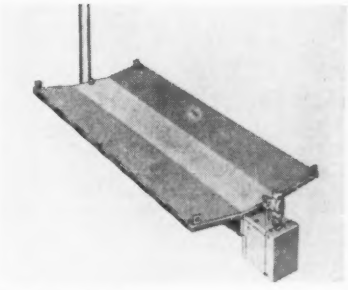
■

Gas refrigerators

A gas refrigerator with 7.6 cu ft capacity and shelf area of 14.2 sq ft has been announced by the Insta-Matic Heater Co. Also available are 1.7, 2.4, 5 and 11.5 cu ft models.

Circle 3 on Readers' Service Card

■



Pig blanket

Designed to keep two litters of pigs warm and dry, the Johnson radiant pig blanket attracts pigs to the heat under the blanket but is too low for the sow. This prevents sows from crushing pigs. Heat is spread evenly over 12 sq ft of blanket keeping pigs and bedding warm and dry. The radiant heat blanket is suspended by four hangers 12 in. above the ground.

Circle 4 on Readers' Service Card

■

Excess flow check valve

Fisher Governor Co. is now making the Type F108 locked type excess flow check valve designed for installation in ASME domestic or commercial storage containers. This device is provided with a locking means so that the poppet of the valve may be retained in a closed position regardless of the pressure which may be applied to the inlet of the valve.

Circle 5 on Readers' Service Card

■

Heavy-duty trucks

Ford Motor Co. announces a new line of trucks which includes a wide selection of heavy duty tilt cab, conventional and tandem models ranging from 25,000 to 51,000 lb GVW and 50,000 to 75,000 lb GCW. The line features models that have up to 20 per cent greater payload capacity than the biggest trucks Ford made previously.

For further information on these products use Readers' Service Cards on pages 83, 84

NEW LP GAS-FIRED MONEY MAKER

the Johnson Radiant *Pig* Blanket

specially designed to keep pigs warm and dry in winter

Now you can offer hog raisers a brooder heater that takes the gamble out of winter farrowing. The Johnson Radiant Pig Blanket keeps two litters warm and dry in the worst winter weather. Lets the farmer farrow in the winter and get hogs to market when prices are highest.

Radiant Pig Blankets are good money-makers for you too. They're popularly priced at $39.95, every hog raiser can afford them. And since they're fueled by LP gas, you have a good bottle gas customer with every Pig Blanket you sell.

Get in on the sure fire sales and profit that are yours with the Johnson Radiant Pig Blanket. Advertising and promotion aids are yours free.

Write today for complete information.

If it burns gas, look to **johnson** SINCE 1901

JOHNSON GAS APPLIANCE COMPANY
597 E. Ave., Cedar Rapids, Iowa

THE COMMERCIAL COOKING LOAD IS YOURS

when you feature . . .

KEATING

Instant Recovery FRYERS!

The Fryer guaranteed to outproduce all others—gas or electric

The Keating 14" Trump

- ★ Automatic Time and Temperature Control
- ★ Instant Temperature Recovery
- ★ Greatest Heat Input Ever

The Keating Trump is the only high input (80,000 BTU's) fryer approved by the AGA for use with LP gas.

A Fabulous FREE Trial Offer!

Prove to yourself and to your customers— You can't beat a Keating Fryer!

Order Keating Fryers for trial installations at your customer's address. If after two weeks a customer is not completely convinced of the superiority of a Keating Fryer, you may return the fryer for full credit PLUS freight charges—BOTH WAYS!

To learn more about the famous Keating Trump Fryers and how YOU can extend this generous trial offer to YOUR customers, write:

FRYING EQUIPMENT & SUPPLY COMPANY
1210 West Van Buren Street
Chicago 7, Illinois

The trucks feature three completely new engines, seven heavy duty transmissions, 11 heavy duty rear axles with capacities up to 38,000 lb, plus all the equipment needed to fully equip the line.

Circle 6 on Readers' Service Card

■

Alcohol pump

A new pump for injecting alcohol into propane-butane tanks under pressure is available from Baker Engineering. When storage cylinders contain moisture, instead of changing cylinders as has been necessary in the past, alcohol can be injected into the cylinder even though it may be partially filled with propane.

Circle 7 on Readers' Service Card

■

Vented room heaters

Temco Inc. has introduced its 1958 line of redesigned vented gas room heaters. The vented circulator series features a two-tone TV screen design to compliment contemporary home furnishings. The models radiate heat from a golden TV screen grille while warmed air circulates through louver openings at the top. A concealed fan attachment that delivers warm air at floor level is available as an accessory.

Circle 8 on Readers' Service Card

■

Five-way range

Dixie Products Inc. offers on one model of its ranges, the Dixiemaster "300," five ways of cooking. Food can be cooked on the four surface burners. Simultaneously the cast aluminum griddle in the middle of the range surface can be used for grilling. A full-

FOR MORE INFORMATION

about New Products in this Issue . . . . .

Each New Product or Trade Literature item reviewed in this issue is numbered. Circle the corresponding numbers on the Readers' Service Card; then PRINT your name, title, company and address plainly and drop the card in the mails (no postage is needed).

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size oven offers another way to cook. Also a rotisserie oven can be used for baking, broiling or warming. And last, the drop-front smokeless broiler is used where a direct flame is desired. Dixie also offers 30 in. and 20 in. wide gas ranges.

Circle 9 on Readers' Service Card

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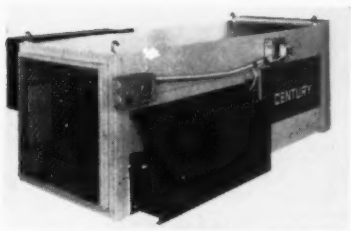


Hog house heater-dryer

The Century hog farrowing house heater dries and ventilates in addition to its 100,000 Btu heating capacity. It hangs from ceiling joists, thus requires no floor space. The blower circulates 1250 cu ft of air per minute. Spark-proof farm thermostat has wide temperature range and narrow on-off differential. Designed specifically for LPG.

Circle 10 on Readers' Service Card

■

Steam generator

Steam generators of flash type, continuous coil construction, capable of producing live steam in 2 to 3 minutes and made in sizes from 3 to 30 boiler hp, are now being produced by Malsbary Manufacturing Co. Each steam generator is a complete package.

Circle 11 on Readers' Service Card

■

Portable elevating trucks

A new series of Safeway portable elevating trucks has been announced by American Pulley Co. The battery-powered or pedal-operated trucks feature a 24 x 25 in. steel platform which can be raised or lowered by a hydraulic-lift mechanism.

Circle 12 on Readers' Service Card

■

Trencher

The Model C Ditch Witch trencher manufactured by the Charles Machine Works Inc. is powered by a 7 hp engine and will dig trench 3, 4½ or 6 in. wide to depths up to 2 ft. Trenching speed is about 4 ft per minute. A bulletin describing the machine is available.

Circle 13 on Readers' Service Card

■

Redesigned blower-type heater

Modifications for improved appearance, greater ease of installation and an increased range of applications have been made in the Series US-B blower-type gas unit heaters manufactured by the Reznor Manufacturing Co. All heaters are now shipped completely assembled, ready for installation.

Circle 14 on Readers' Service Card

■

Dual voltage solenoid valve

Beam Products Manufacturing Co. has perfected a compact universal 6 or 12 volt DC solenoid valve which may be used on either

Build profits
with PHILCO®-BENDIX
GAS LAUNDRY

Philco-Bendix Gas Dryer sales are up 264%! More Philco-Bendix Gas Duomatic washer-dryers have been sold than competition combined! Now, discover how you can profit from this huge sales success. Learn how Philco quality lets you sell the most trouble-free gas laundry on the market. Find out how Philco's crack sales and service team can help you organize the most forceful merchandising programs in gas laundry. All you have to do is send the coupon. Don't wait!

Mail the coupon today!

Philco-Bendix Home Laundry Appliances are brought to you by Philco Corporation

Norm Millard
Manager Utilities, Philco Corporation
Tioga and C Streets, Philadelphia 34, Pa.

O.K. Tell me about the terrific merchandising and sales opportunities with Philco-Bendix gas laundry. I understand there is no obligation.

Name_____
Company_____
Address_____

voltage. Weighs 11 oz and measures 2¾ in. in length; is of straight-through design, has ⅛ in. pipe connection and may be used as gasoline shutoff.

Circle 15 on Readers' Service Card

■

Air conditioning system

A year-round air conditioning system is introduced by Lennox Industries Inc. Heating, cooling coil and blower-filter elements are enclosed in separate cabinets permitting the exactly correct selection of air delivery, heating and cooling capacities. From the one series of components, dozens of arrangements may be made.

Circle 16 on Readers' Service Card

■

Plumber's pot valve

The latest design of the Rego 2547 series plumber's pot valve permits a finer degree of flame control than formerly possible, particularly at low flame settings. A throttling effect is built into the valve, providing an easily attainable minimum pilot or "keep-warm" flame.

Circle 17 on Readers' Service Card

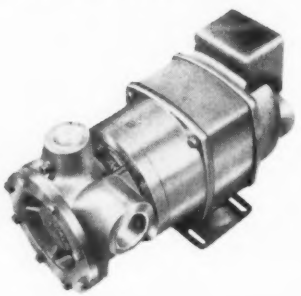
■

1ST. CHOICE

and there's good reason why!!

CORKEN CORO-FLO PUMPS ARE USED BY MORE FUEL DISPENSER MANUFACTURERS THAN ANY OTHER PUMP . . .

CHOICE OF 4 SIZES – 8 MODELS, EITHER CLOSE COUPLED OR FRAME TYPE



- **Performance to meet all Fueling needs**
- **Dependable Service — 1 year guarantee**
- **Rugged—quality built of Ductile iron**
- **Quiet running — no unpleasant noise**
- **For your safety — Underwriters approval**

MEMBER NATIONAL LP-GAS COUNCIL · AAI · MEMBER LPGA

CORKEN'S INC.

P. O. Box 1062 • Ph. FO 5-5517

Oklahoma City, Okla., U. S. A.

Carburetor adapter

An L. P. gas adapter for converting 4 bbl carburetors to combination (L. P. gas and gasoline) operation is announced by Century Gas Equipment Co. This adapter is suitable for all Ford, Chrysler and GMC products except Ford-6 and 6 cylinder 1957-58 Chevrolets. It has only two adjustments—idle and full power. Only one fuel line, a 1 in. vapor hose, is required.

Circle 18 on Readers' Service Card

■

Trucks for lease

LPG Truck Leasing Inc. has 1200, 1400, 1600, 1800 and 2000 gal. capacity single bbl LPG tank trucks available to lease to L. P. gas dealers. All sizes of tanks are mounted on new 1958 Model GMC chassis: 1200 gal. and 1400 gal. sizes on GMC Model 353-8; the 1600 and 1800 gal. sizes on GMC Model 354-8, and the 2000 gal. size on GMC Model 375-8.

Circle 19 on Readers' Service Card

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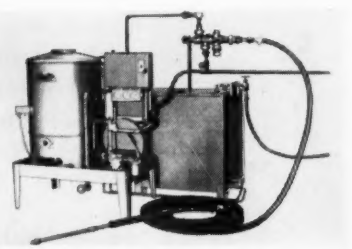


Steam-hydraulic jet cleaner

The Clayton-Sellers steam and hydraulic jet cleaner, Model CS 628, has been designed especially

Peerless

HAS THE MOST COMPLETE LINE OF GAS HEATERS *for every need!*

WITH THE GREATEST SELLING FEATURES IN YEARS!

Your reputation for quality merchandise will be enhanced when you display and sell PEERLESS GAS FIRED CONSOLES because Peerless are gas heating specialists with over 70 years experience and a record for leading the field in smart designs, greater heating efficiency and maximum dollar value.

The RADIANT FRONT GAS CONSOLE

Only Peerless has exclusive Directional Louvres that provide best circulation and keep walls clean. This is only one of the many desirable features that sell Peerless . . . and keep it sold. A full range of sizes . . . 15 models in all . . . from the 14,000 B.T.U. "Mighty Midget" to the 65,000 "LowBoy."

The PLAIN FRONT GAS CONSOLE

GAS *Peerless* | *The modern fuel*
THE MODERN HEATER

Peerless
MANUFACTURING DIVISION
OF DOVER CORPORATION — LOUISVILLE 1, KENTUCKY

See your Distributor or write us

for use in heavy duty industrial cleaning jobs. The units provide either steam cleaning for high impact, heavy duty close up cleaning, or a hot hydraulic jet steam for cleaning distant surfaces.

Circle 20 on Readers' Service Card

■

60-watt mobile unit

General Electric Co. announces that it has developed a transistor-powered line of mobile radio equipment. A 60-watt mobile unit is a feature of the new line and is now in pilot production. Transistorized power supplies in the new units are associated with both the transmitter and receiver.

Circle 21 on Readers' Service Card

■

Range

Among the new features announced for Magic Chef's 1958 line of gas ranges is a hi-broiler meat oven on 36 in. ranges. Other ranges feature swing-out broiler or its "outamatic" broiler that glides out when the broiler door is opened. The new line is said to be priced more competitively than ever before with the majority of ranges under $200.

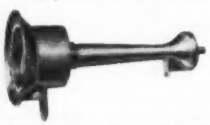
Circle 22 on Readers' Service Card

■

Buy Quality **BUY RANSOME BURNERS**
...FOR INDUSTRIAL HEATING REQUIREMENTS!

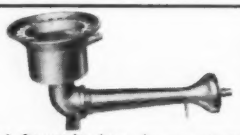
for high or low pressure L.P.G. OR NATURAL GAS

SPREAD HEAD TYPES — disperse uniform controlled heat over wide surface areas. All types available with shut-off valves; solenoids; temperature, pressure and draft controllers.



Straight Shot Flame — for outstanding performance where burner is subject to extreme draft conditions...drying fruits, grains, nuts, cotton, alfalfa, vegetables, etc. 8 sizes, 4¼" to 12" dia. heads.

Upshot, Side Venturi—can be used where there is minimum head room or in rectangular fire boxes. Principally used in food production...deep-fat frying operations. 5 sizes, 4" to 8" dia. heads.



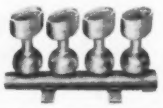
Upshot, Conversion type—for uses where heat is directed upward over large areas ...furnaces, vertical boilers, kettles, vats, large water heaters, etc. 3 sizes, 8" to 12" dia. heads.

Multiple Applications — Upshot types can be mounted on **single venturi** and made adaptable for firing boilers, large furnaces, or for many other large heating specifications.

Ring Burners, 100% Secondary Air Type—for installations where high BTU input rates are desired, but only low gas pressures are available. Not equipped with venturi...operate on any type of low pressure gas **without flash back!** 7 sizes available.

Torch Type, Straight Flame — for concentrated heating applications...industrial or commercial ovens, enameling furnaces, forges, kilns, sand and rock driers, dehydrators, cement plants, ore roasters. 8 sizes, 1⅜" to 10½".

Immersion Tube Burners—Ideal for liquid heating, such as water heating solutions. Also for cooking meats, nuts, potato chips and other deep-frying. 5 sizes, for 2" to 6½" pipe or tubing.



Manifolded Utility Burners — used for exact flame pattern specifications while maintaining required BTU input rates.

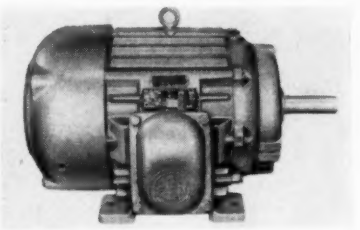
Small Utility Burners—12 styles provide adaptability for commercial uses...pilots, heating coffee urns, steam tables, etc.

INCREASE YOUR INDUSTRIAL AND COMMERCIAL BUSINESS...WRITE TODAY FOR 16-PAGE BURNER CATALOG TO:

• 50 GAL. PER HR. LIQUID BURNERS AVAILABLE!

FOR MOST COMPLETE INFORMATION include type of gas and pressure available!

RANSOME COMPANY
Liquefied Petroleum Gas Division
4030 HOLLIS STREET • EMERYVILLE 8, CALIFORNIA

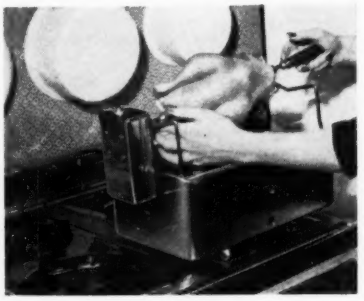


Explosion-proof motors

A new line of totally-enclosed, explosion-proof motors has just been announced by Fairbanks, Morse & Co. Designed to eliminate fires or explosions when motors must be operated in combustible or explosive atmospheres.

Circle 23 on Readers' Service Card

■



Range-top rotisserie

A new range-top rotisserie which employs a unique method of heat deflection to eliminate spattering has been introduced by the Tappan Co. It fits securely into the combustion tray of all tappan gas ranges equipped with the "sizzle and simmer" burner.

Circle 24 on Readers' Service Card

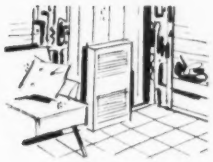
■

Low compact furnaces

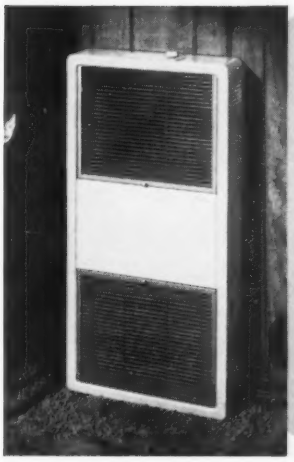
Three gas-fired furnaces with input ratings of 105,000, 135,000, and 165,000 Btu/hr, make up the new Low-Boy line of the Coleman Co., Inc. Overall height (not in-

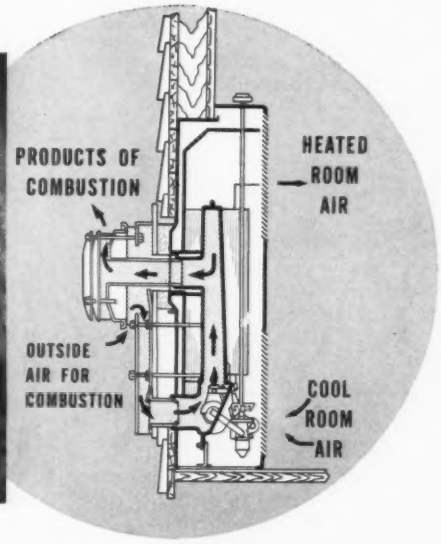
SAF-AIRE
SAFETY-SEALED

AUTOMATIC GAS HEATING

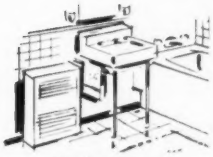


For enclosed porches and added rooms

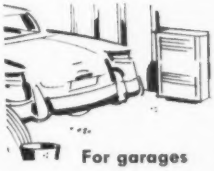




THE EASY—*AND PROFITABLE*—WAY TO ADD HEAT



For bathrooms



For garages

For workshops

No chimney...no ducts...no electricity needed!

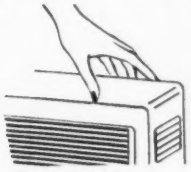
Here's the safe, economical and easy way to provide *extra heat* wherever needed. Saf-Aire Gas Heaters are profit makers in any community because of their numerous applications.

The diagram above shows the "*safety-sealed*" design of Saf-Aire Gas Heaters. Gas is burned in a ceramic lined steel chamber, completely sealed from the room air being heated. Sealed vents through the wall supply outside air for combustion and discharge products of combustion directly outdoors. That's why Saf-Aire is approved for bedroom installation.

Saf-Aire units are space-savers—extend only 5¼" into the room. They're handsomely finished in baked enamel—harmonize with any decorative scheme.

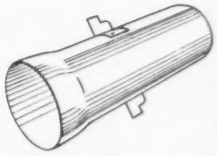
Write today for information on a Saf-Aire dealership.

EXCLUSIVE FEATURES...TESTED AND PROVED IN OVER 10 YEARS' OPERATION IN THE FIELD

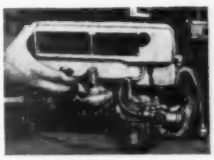


Saf-Aire units extend only 5¼" into room.

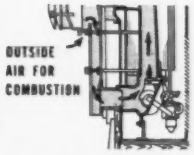
Easy installation. Rectangular opening simplifies installation in any type wall.



Terminal exhaust tube is stainless steel—will not rust or corrode.



Loosening two screws permits removal of entire burner assembly and controls. Easily inspected and serviced.



Air for combustion enters the unit at bottom of burner assembly. Positive air direction minimizes pilot outage.

Symbol of SW Excellence

STEWART-WARNER

HEATING AND AIR CONDITIONING DIVISION • Dept. AT-38, Lebanon, Indiana

THESE ARE THE QUALITY PRODUCTS OF THE STEWART-WARNER CORPORATION

ALEMITE Industrial and Automotive Lubrication Equipment, Lubricants and Chemicals; such as CD-2, KLEEN-TREET and COOLING SYSTEM CONDITIONER • STEWART-WARNER Electronics Equipment and Systems, Commercial and Military • BASSICK Casters, Wheels and other Materials Handling Devices, Flo-Tilt Office Chair Controls • STEWART-WARNER Speedometers and other Automotive, Industrial and Marine Instruments • SOUTH WIND Aviation Heat Exchange Products and Instant Automotive Heaters and Mnit Heater • STEWART-WARNER SAF-AIRE and WINKLER Heating and Air Conditioning Equipment • STEWART Die Castings • HOBBS Electric Hour Meters • BASSICK-SACK Furniture Hardware.

All of above trade names are the property of Stewart-Warner Corporation

cluding plenum) is 42½ in. All models have belt-driven blowers which permit a wide range of air adjustment.

Circle 25 on Readers' Service Card

■

Residential air conditioning

Carrier Corp. has developed a new gas-operated residential air conditioning unit. It is designed for installation with gas-fired heating systems, converting them to year-round usefulness. The cooling apparatus itself will be located in a cabinet installed outside the house. It will chill water which will circulate through a coil in the furnace.

Circle 26 on Readers' Service Card

■

L. P. gas heater line

An entirely new water heater designed specifically for the L. P. gas market is now available from White Products Corp. The line will be produced in four capacities: 20 gal., with 20,000 Btu input and 16.8 gal. per hour recovery; 30 gal. with 30,000 Btu and 25.2 gal. per hour recovery; and a 40 gal. with 30,000 Btu and 25.2 gal. per hour recovery. The models feature a completely new burner which has been designed to meet FHA specifications.

Circle 27 on Readers' Service Card

■

You can cut costs!
Cut-away view showing rugged construction of Viking LP-Gas Pump.
10 - 20 - 30 - G.P.M. units direct connected to explosion - proof 1750 RPM motors.

USE
Viking
LP-GAS FUELING & BOTTLE FILLING
Pumps

If YOUR job is to cut costs, the efficient operation and long-wearing qualities of this Viking LP-Gas Pump can help you.

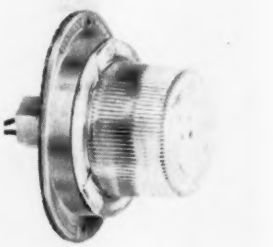
... You can step-up delivery with Viking's "gear-within-a-gear" positive pumping action.
... This Viking Pump requires no lubrication.
... You eliminate leakage with mechanical seal and O-ring gaskets.
... You do away with vapor purging devices and other gadgets.
... You have extra safety—a pump carrying the Underwriters marker.

For additional information, write today for Catalog HB.

For your safety all pumps carry this Underwriters marker

LISTED UNDER REEXAMINATION SERVICE UNDERWRITERS' LABORATORIES, INC. UL

VIKING PUMP COMPANY
Cedar Falls, Iowa, U.S.A. In Canada, it's "ROTO-KING" pumps
See Our File in Butane-Propane Catalog



Stop and tail lamp

A weatherproof stop and tail lamp with conduit connection whereby it may be mounted vapor proof is offered by Betts Machine Co. A 1 11/16 in. projected red lens warns traffic coming up from the rear, and also provides visibility at right angles. Combination tail, stop and license lamp of same type construction is also available.

Circle 28 on Readers' Service Card

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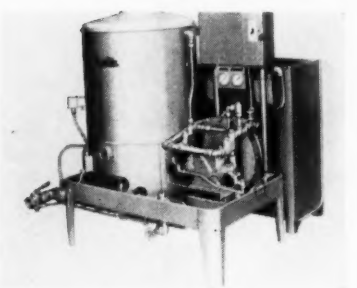


Steam cleaner

A heavy-duty steam cleaner, designated the 280 "blast master," has been announced by the Clayton Manufacturing Co. It delivers all or any part of a full 280 gal. per hour of balanced cleaning solution. It is completely self-contained and fully automatic. It features a "flexi-matic control" which automatically regulates fuel to the burner and

Sheffield gas cylinder paint

Here's an EXTRA that will add excitement to your business! Sheffield has developed this special gas cylinder paint formulation of a METALLIC paint in pastel blue and green in addition to its well known aluminum... and it's great! Takes plenty abuse... and comes up bright and smiling! Available in gallon, 5 gallon and 55 gallon containers.

- FAST DRYING
- HARD SURFACE
- SATIN FINISH
- MAY BE STENCILLED WITHIN 15 MINUTES
- WON'T RUB OFF
- MAY BE BRUSHED OR SPRAYED
- MADE WITH A SPECIAL SYNTHETIC VEHICLE THAT IS INSOLUBLE IN TURPENTINE OR ORDINARY PETROLEUM THINNERS

***Sheffield* ALUMINUM TANK PAINT**

Extensive weather-o-meter tests prove this NEW aluminum paint will resist more than one and one-half years EXPOSURE TO WEATHER EXTREMES! Formulated to do TWO specific jobs... to PROTECT surfaces against rust, wear and corrosion and to add a long lasting attractive finish. Covers all primed surfaces in ONE COAT... economical because it is long lasting! Ideal for Bulk Gas Storage Tanks.

SHEFFIELD BRONZE PAINT CORPORATION

Cleveland 19, Ohio

water flow to the coil, permitting the operator to select and use all or any part of the 280 gal. per hour capacity from one or even two guns.

Circle 29 on Readers' Service Card

■

Heating control

The new Robertshaw Unitrol 1000 converts from manual unit to automatic control without the use of special tools for space and central heating applications. It combines A and B gas cocks, 100 per cent safe-lighting automatic pilot, pilot filter, pilot flow adjuster, thermostatic gas valve and pressure regulator in one small compact basic unit.

Circle 30 on Readers' Service Card

■

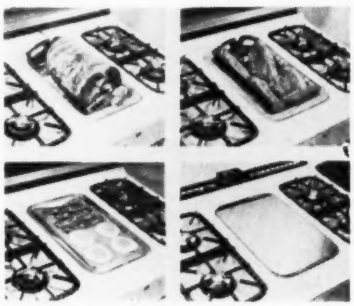
Tilt-cab series

Diamond T's announcement of new 1958 models in the 900CHS series introduces for the first time a tilt-cab vehicle featuring an extra-heavy-duty LPG power plant. The company feels that the major application of the new models will be as highway tractors with maximum payloads. Gross combination weight ratings for 2-axle units is 65,000 lb, and is upped to 76,000 lb with tandem rears.

Circle 31 on Readers' Service Card

■

BEACON
is a
STAR PERFORMER
in its field, too!
BUTANE-PROPANE
★ QUALITY PRODUCTS
★ QUICK DELIVERY
★ BETTER SERVICE
★ DEPENDABILITY
It takes skill and "know how" to stay at the top in any field . . . and that's the reason that Beacon is a star performer in the Butane-Propane field. You will want to see for yourself, so try Beacon on your next Butane-Propane order.
PHONE
LU 5-5553 TULSA
BEACON
PETROLEUM COMPANY
P. O. BOX 2100
TULSA, OKLA.



Four-way cooking center

A four-way cooking center, called the "Rotis-O-Grill," serves as a rotisserie, vertical broiler or spatter-free griddle. Covered, it provides handy extra work space. Two radiant-type gas burners, independently controlled, furnish penetrating cooking heat without warming up kitchen. It is manufactured by the Geo. D. Roper Corp.

Circle 32 on Readers' Service Card

■

Broiler that bakes

A standing range equipped with a high broiler that also bakes is incorporated into Gaffers & Sattler's top gas range of its 1958 line. In addition to the conventional oven, the broiler is a unit converted to an oven rather than an oven converted to a broiler. It is equipped with two sets of burners, a high and a low. The high burner is used for broiling, the low burner takes over for baking.

Circle 33 on Readers' Service Card

■

TRADE LITERATURE

Welded steelcase meter data

American Meter Co. is now offering technical bulletins on its

The current trend of LPG dealers to demand bigger payloads, for the corresponding added profits in hauls, is causing truck tank manufacturers to redesign their lines. Now, Trinity Steel Company announces the latest big development . . .

New Trinity Steel Co. Model 204 Special T-1 single blimp truck, showing the compact design of working areas and blimp tank.

NEW 3000 WG PAYLOAD TRUCK TANK...

Less than 25,000 pounds loaded weight!

Payload has become the most important word in the vocabulary of today's modern LPG dealer. With the strict limitations on total loaded weight imposed by most states, the importance of getting more gas payload and less dead steel weight has become magnified. Actually, hauling more gas per load is one of the few remaining methods left for the dealer in his fight to keep profits ahead of rapidly rising labor and equipment costs.

How do you increase payload?

There are three basic methods to increase payload:

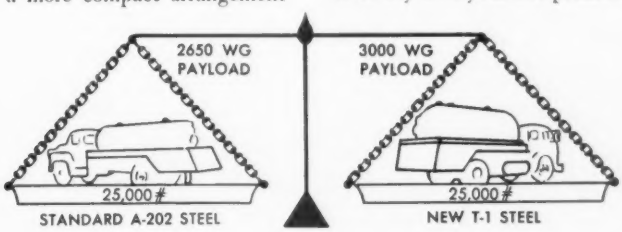
- ★ Improve truck tank design.
- ★ Reduce chassis weight.
- ★ Use lighter weight steel in the tank.

The engineering staff at Trinity Steel balanced every detail of the truck tank to find a more compact arrangement of parts. Hose, fittings, plumbing, skirting, storage compartments . . . all received careful study. Close cooperation with the chassis manufacturers produced a lighter weight chassis. Most important of all, Trinity used their experience and know-how with the amazing 105,000# tensile strength T-1 steel to best advantage. Lightweight T-1 is truly the most outstanding development of the steel industry in years.

Through a combination of new design, reduced chassis weight and use of T-1 steel, Trinity has produced a 3,000 WG truck tank that weighs less than 25,000# loaded, the largest payload unit ever built with 18,000# maximum on single rear axle.

How do you figure payload profits?

Let's say that your net profit averages 5¢ per gallon. Also, let's say that your state's legal maximum is 25,000#, with 18,000# rear axle. With this loaded weight, a standard A-202 steel tank will hold approximately 2,650 WG . . . Trinity's new Model 204 Special T-1 tank holds 3,000 WG, or *350 WG more payload!* You thus haul $15.75 more profit per load (90% of Extra WG). Suppose that you haul two loads per day. In less than three months, you will have gained back more than the extra cost of the T-1 over the standard A-202 . . . from this point on, profits are clear sailing for the life of the truck!



Outstanding Guarantee Offered by Trinity

Trinity Steel Co. guarantees in excess of 50 GPM pumping speed, with vapor return hose and the new Trinity Design Plumbing, through conventional 1¼" filler valves! It is believed that this guarantee is the *first* such one to be offered, and demonstrates Trinity's faith in the effectiveness of their Model 204 Special T-1 Blimp Truck Tanks.

(Advertisement — Trinity Steel Company — 4001 Irving Blvd. — Dallas, Texas Phone: FL 7-3961)

INCREASE YOUR SALES

SUBURBAN NOVENT OR DYNAVENT

the vented gas heaters that need NO VENT

SELL THEMSELVES

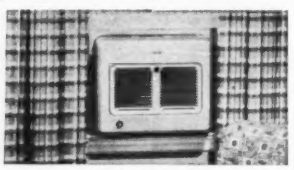
Only Suburban Novent and Dynavent Gas Heaters are

Easily installed in window or wall

Completely vented without flue or chimney

Automatically controlled by a built-in thermostat

So efficient that they save up to 30% in fuel costs



Available in 35,000 and 45,000 BTU models. Approved by the AGA, leading utilities and LP-Gas marketers.

SUBURBAN APPLIANCE CO.

WHIPPANY, NEW JERSEY

welded steelcase meters. Bulletin 304 gives technical information on the entire welded steelcase line. Bulletin 303 gives detailed information on the W-75 welded steelcase meter which has a rated gas capacity of 75 cfh. Bulletin 302 describes the new W-45 LPG welded meter with rated capacity of 45 cfh propane.

Circle 34 on Readers' Service Card

■

ASME code index

Some of the important design data which must be referred to constantly by pressure vessel designers, but which are widely scattered throughout the present ASME Boiler & Pressure Vessel Code, are now available in easy reference form. The engineering department of Downingtown Iron Works has prepared a handy index for quick location of such references.

Circle 35 on Readers' Service Card

■

Carburetion manual

Every possible cause of erratic or poor operation of any L. P. gas engine can be determined with the use of a new book titled "Service Manual—All Makes, L. P. Gas Carburetion," according to Beam Products Manufacturing Co., the publishers. There is a nominal charge.

Circle 36 on Readers' Service Card

■

Service manual

For the installer and serviceman of heating and air conditioning equipment and controls, General Controls Co. announces the availability of the latest printing of its B-60 service manual.

Circle 37 on Readers' Service Card

■

Valve bulletin

Free 6-page bulletin J-160 gives complete information on OPW-Jordan sliding gate pressure reducing valves, designed to give dead end shutoff on all fluid services. It contains flow capacity charts, dimensional drawings, control ranges and material specifications.

Circle 38 on Readers' Service Card

BPN the trade

Marketing vice president for Robertshaw-Fulton is Beck

A. W. Beck has been appointed to the newly-created position of vice president of marketing for Robertshaw-Fulton Controls Co., it is announced by Thomas T. Arden, president. Mr. Beck becomes a member of the company's executive staff with headquarters in Richmond, Va.

Formerly Mr. Beck was sales manager of the company's Grayson Controls division. He joined Robertshaw in 1947 as sales representative. Prior to that, he served for eight years with Southern California Gas Co.

A. W. Beck
Robertshaw

R. C. Boehm
Tuck-Aire

Tuck-Aire promotes Boehm to national sales manager

The Tuck-Aire Furnace Co. of San Francisco has appointed Robert C. Boehm as national sales manager for the firm.

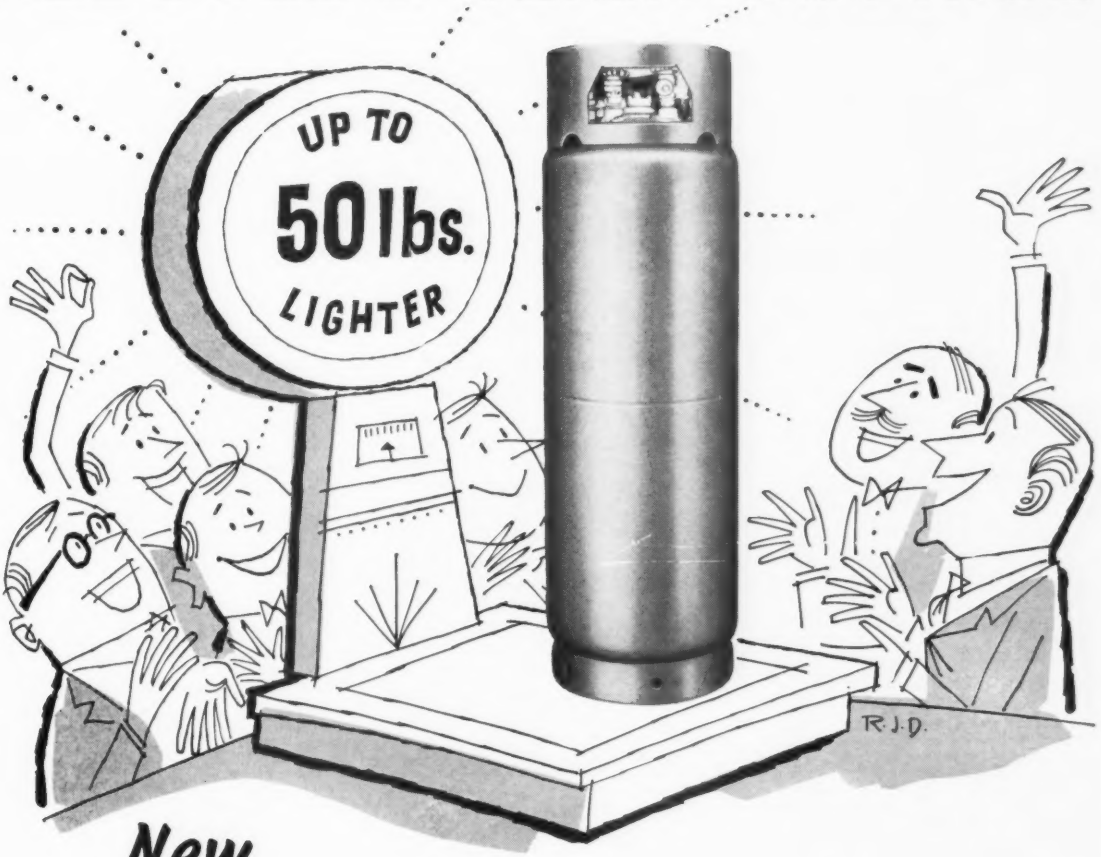
Mr. Boehm has worked for the Fulton Sylphon Co. in Chicago as a sales engineer and for General Controls in the sales department.

From 1953 to the present time, Mr. Boehm has been with Tuck-Aire, first at Atlanta, Ga., and later at Seattle, Wash.

New vice president for Aeroil Products is Alexander Quayle

The appointment of Alexander Quayle as vice president in charge of engineering and manufacturing is announced by Charles V. Schaefer Jr., president of Aeroil Prod-

REDUCED in WEIGHT and PRICE!



New

PREST-O-LITE 23½-gal. Cylinder for LP-Gas

TRADE-MARK

Here's another new member of the "royal family" of propane and butane cylinders . . . with even more new features that save weight and money.

This newest type, lightweight PREST-O-LITE LP-Gas cylinder is designed for universal service. It meets the needs of everyone—contractor, farmer, manufacturer—who requires large volumes of propane. Seven fittings in the dome of the PREST-O-LITE Universal Service Cylinder permit *any* type of service in either the horizontal or vertical position. And this cylinder can deliver propane either as liquid or vapor or both at the same time.

Its two-piece welded construction provides extra strength, yet is up to 50 lbs. lighter than equal capacity ASME tanks. And it's priced as much as ⅓ lower than similar tanks!

For detailed data and prices on any PREST-O-LITE Cylinder, call or write your nearest LINDE office. LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. Offices in other principal cities. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

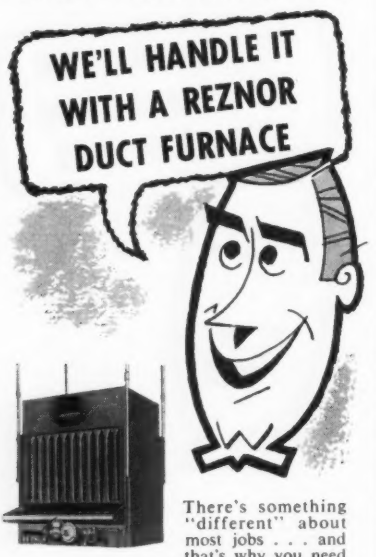
Linde
TRADE-MARK

UNION CARBIDE

The terms "Linde," "Prest-O-Lite," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

When that 'tough' customer says . . .

Just tell him . . .



There's something "different" about most jobs . . . and that's why you need the Reznor Series DS sectional duct furnace. With this versatile heater you can create a different heating system for each job. Reznor gives you a compact, highly-efficient heat exchanger with a full set of combustion controls. You select and supply all of the other components in the system to meet exact job requirements. You're not bound by the limited performance range of most packaged equipment . . . you have complete freedom to decide how, and with what equipment, to handle air moving, cooling and dust and moisture control. And that's why the Reznor sectional duct furnace lets you satisfy each "tough" customer with the system that's exactly right for his requirements.

And Reznor's sectional assembly eliminates some big installation headaches, too. Now you can assemble duct heating systems with capacities of two million Btu and more . . . right on the job . . . from sections weighing no more than 315 pounds. For complete details on how Reznor sectional duct furnaces make things easier for you . . . and better for your customers . . . just give your nearby Reznor distributor a call. You'll find him listed under "Heaters-Unit" in the Yellow Pages.

REZNOR
WORLD'S LARGEST-SELLING DIRECT-FIRED
UNIT HEATERS

Reznor Manufacturing Co., 4 Union St., Mercer, Pa.

ucts Co. Inc., South Hackensack, N. J.

Mr. Quayle has recently joined the staff of Aeroil, coming from Dallas, Texas, where he has been associated with the U. S. Steel Corp. in various sales and engineering positions. His experience covers 21 years, mostly in product development research and engineering. He came to Aeroil fresh from his position as director of engineering of the Oilwell Supply division with headquarters in Dallas.

Cochrane succeeds Broggi as president of Neptune Meter

William H. Cochrane has been elected president of Neptune Meter Co. succeeding Dante E. Broggi, it is announced by John H. Ballantine, chairman of the board.

In making the announcement, Mr. Ballantine stated, that Mr. Broggi in submitting his resignation as president and director expressed the desire to be relieved of the detailed responsibilities of management to enable him to devote most of his time to outside personal interests. He will continue to serve as a consultant to Neptune.

The newly elected president, Mr. Cochrane, was formerly executive vice president responsible for coordinating policies and operations affecting administration, manufacturing and sales activities among Neptune and its subsidiary companies.

Ross elected to Rheem's board of directors

Thomas J. Ross, senior partner in the firm of Ivy Lee & T. J. Ross, public relations counsel, recently was elected a member of the board of directors of Rheem Manufacturing Co., it is announced by A. Lightfoot Walker, president.

Mr. Ross is filling a vacancy on the board caused by the resignation of D. L. Rheem, one of the founders of the company, who is retiring.

Smith, Landgraff and Powers promoted by Chiksan Co.

Louis J. Smith has been appointed vice president and sales manager of Chiksan Co. and Chiksan of Canada, Ltd., and Edward T. Landgraff has been made vice president and sales manager of

for the best···
BUY M·W cylinder
HAND TRUCKS

Models #7325-ZP and #7325-A
Standard Cylinder Truck equipped with 10 x 2:75 tires mounted on ball-bearing wheels; ½" axle; 1" tubular steel frame. Capacity: 400 lbs. Model #7325-ZP, with puncture-proof zero pressure tires **$19.25**
Model #7325-A, with single tube pneumatic tires **$25.95**

Model #7325-G
Cylinder Truck equipped with 10 x 3:50 General tires and tubes, mounted on ball-bearing wheels, ⅝" axle; 1" tubular steel frame. Capacity: 400 lbs. **$29.05**

Model #S-7325
Special Cylinder Truck equipped with 12 x 3:50/2-ply tires and tubes, mounted on roller-bearing wheels; ¾" axle; 1¼" tubular steel frame. Capacity: 600 lbs. Designed for free movement over soft terrain. **$34.25**

Model #900
Heavy Duty Cylinder Truck equipped with 12 x 4:00/4-ply tires and tubes mounted on ball-bearing wheels; ¾" axle; 1¼" tubular steel frame. Capacity: 1,000 lbs. Designed for cylinders up to 30" in diameter. **$47.95**

M/W Distributors, located in most cities, are always ready to serve you; or mail order to our nearest plant.

Moellenbrock AND Wilke, INC.

204 Jefferson St. Washington, Mo. • 346 E. Walnut Lane Philadelphia 44, Pa.

Look to MASTER for

Centrally Located in Quincy!

When it comes to delivery . . . SPEED is important. That's why we built our newest plant in Quincy, Illinois . . . where we could give speedy delivery on the finest propane tanks . . . by train, truck or water. Speedy delivery means prompt service to your customers . . . faster profits for you.

Don't carry an expensive inventory. Overnight shipments can be made to most of our customers.

THE WORLD'S MOST MODERN PROPANE TANK MANUFACTURING PLANT

Southern shipments from our Dallas, Texas, plant.

We can produce 5,040 of the world's finest tanks a month. Thoroughly dehydrated. Finished with rust-proof primer and the finest quality paint.

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Spray Equipment

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Write for New Fine Catalog No. 457 LP

FINE PRODUCTS CO.
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BERWYN (Chicago Sub.) ILLINOIS

Chiksan Export Co., it is announced by H. J. Hagn, president.

Mr. Smith, who joined Chiksan in 1948 and has been eastern regional sales manager since 1951, will make his headquarters at Chiksan's main office and plant in Brea, Calif.

Mr. Landgraff has been with the company since 1946 and has been export sales manager since 1954. He will continue to headquarter at the company's Newark, N. J., office.

Replacing L. J. Smith as eastern regional sales manager is John F. Powers, Jr., formerly senior field engineer.

The changes in Chiksan's sales department were made as a result of the resignation of G. R. Winder as vice president and general sales manager of Chiksan and its two subsidiary companies. Mr. Winder left to become associated with the Ohio Injector Co. of Wadsworth, Ohio, as vice president of marketing.

Anneaux is general sales mgr. of Whirlpool's utility div.

Dwight R. Anneaux, general sales manager, special markets, for Whirlpool Corp., has been appointed to the new position of general manager of the recently formed utility division, it is announced by Jack D. Sparks, director of marketing.

Appointed to the executive staff of the Whirlpool utility division are Robert M. Marberry, general sales manager, gas utilities, and John W. Benson, advertising and promotion manager of the division.

Honeywell realigns management of commercial sales division

A realignment in the management of Minneapolis-Honeywell's rapidly growing commercial sales division has been announced by John E. Haines, company vice president.

Mr. Haines maintains that the realignment paves the way for increased business through the introduction of new products and a vigorous sales campaign in existing markets.

The realignment coordinates three basic sales functions in the division's Minneapolis home office under R. W. Crysler, division sales manager. Appointed to newly created posts are:

C. M. Sanders, formerly manager of the company's electronic control market, who will be in charge

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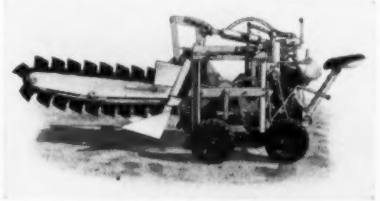

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of developing new products and also promotion of existing controls;

J. F. Cummiskey, assistant sales manager, who will direct activities of the five market sales managers responsible for sales to all types of commercial, public and industrial buildings; and

V. D. Wissmiller, previously in charge of Honeywell's sales to the maritime and transportation industry, will be responsible for establishment of sales policy and financial planning and will continue direction of manufacturer sales.

C. M. Sanders
New products

J. F. Cummiskey
Asst. sales mgr.

V. C. Wissmiller
Sales policy

R. F. Bolton
Riffe

Riffe Petroleum names manager of its new L. P. gas department

R. F. Bolton is manager of the newly formed L. P. gas department of Riffe Petroleum Co., Tulsa, Okla. The announcement was made by L. E. Riffe, president.

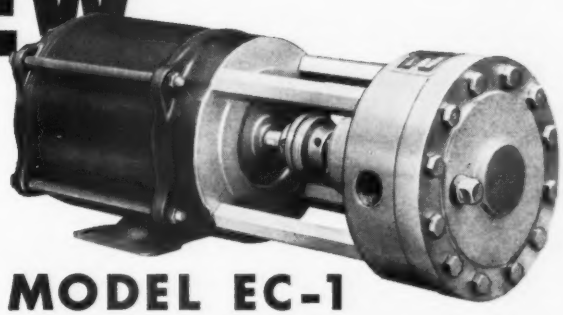
Riffe Petroleum Co. has formerly marketed primarily in the fields of asphalt and refined oils and is now widening the scope of its services by adding an L. P. gas department.

Mr. Bolton formerly was associated with Petro-Chemical Equipment Co., Shreveport, La., American Tank & Manufacturing Co., Dallas, Texas, and previous to that had five years L. P. gas marketing experience.

Holmes will represent Lubbock Machine & Supply in Texas

The appointment of Will K. Holmes as sales representative has been announced by T. A. Rogers,

NEW



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Your driver ALONE can load and unload large tanks with ease

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- Fits low on the truck out of the way when not in use.
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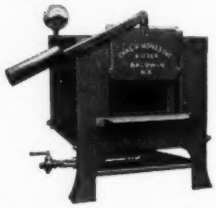

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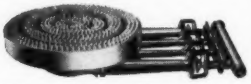

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The super-penetrating rust solvent

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rusted bolts, nuts, screws, 'frozen' parts
Liquid Wrench works *fast*... yet is absolutely safe for all metals and alloys.

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president of Lubbock Machine & Supply Co.

Mr. Holmes will headquarter in Dallas and will specialize in the sale of transportation equipment in the Dallas, Fort Worth, Houston and Gulf Coast areas.

Prior to joining Lubbock Machine, Mr. Holmes was Dallas division sales manager for Master Tank & Welding.

Honeywell names Belford sales manager for 23-state area

Appointment of Louis Belford to the newly created post of eastern sales manager for Minneapolis-Honeywell's commercial division has been announced by John E. Haines, company vice president.

Mr. Belford, formerly the firm's eastern regional commercial sales manager, will supervise the division's sales in a 23-state area. He will continue to headquarter in New York City.

Mr. Haines also announced these changes in the division's field sales force:

Martyn Kingsland, northwest regional commercial sales manager in Minneapolis since 1950, will replace Mr. Belford as eastern regional commercial sales manager.

Joseph Jester, former branch manager at the Twin Cities sales office, succeeds Mr. Kingsland in Minneapolis.

Robert Patton, previously branch commercial sales manager in Dallas, has been named regional commercial sales manager for the seven-state Mountain region.

Weatherhead Co. announces several appointments

A series of promotions and appointments among executives of the Weatherhead Co., Cleveland, is announced by Albert J. Weatherhead, Jr., president.

New plant manager in Cleveland is Albert J. Weatherhead, III, succeeding Elmer J. Mlinar, who is reassigned to the firm's plant at St. Thomas, Ont., Canada. Son of the firm's founder and president, the younger Weatherhead will direct all manufacturing activities of the special products division. Prior to his joining the Weatherhead Co. in 1956, he served as production-manager for Blaw-Knox, Mattoon, Ill., for two years. Earlier in his business career he was product manager for Yale & Towne Manufacturing.

Other appointments made to

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Now . . . with this authoritative, convincing sales tool, you can prove to your prospects *quickly, easily* and *simply* that LPG costs less than electricity for cooking and water heating. Money talks with most people, so *dramatize the savings* with a Competitive Cost Calculator.

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It's authoritative! Average annual usage figures for both LPG and electricity are taken from Technical Bulletin 1073 prepared by the U. S. Department of Agriculture.

It will last for years. Made from durable plastic-laminated board.

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The Competitive Cost Calculator builds fuel sales as it builds appliance sales. Hundreds of LPG appliance salesmen are using the Calculator to add authority to their sales presentations. Be sure each of your salesmen has one with him on every call.

$1.00 each

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BUTANE-PROPANE News

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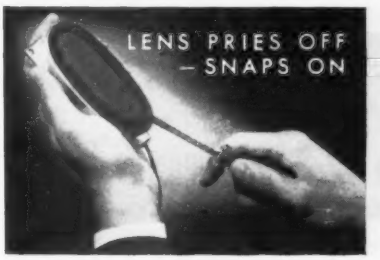
Vapor-proof

Warren Snap Seals prove that after six months of total immersion in water, all exterior conditions are excluded indefinitely. Results: lifetime service, minimum maintenance, no rusting or corrosion, longer bulb life, no inside lens fogging.



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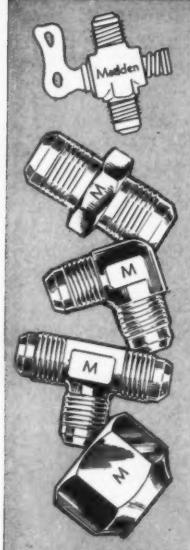

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handle the program of expanded activity planned for 1958, include promotion of James M. Mahon, formerly of cost reduction, to position of manufacturing manager; John Stair as plant engineer; and, on a company-wide basis, Jack Smetzer and Laddie Rych, to positions in manufacturing research.

Honeywell names McCardle director of European operations

John McCardle has been named to the newly-created post of director of Minneapolis-Honeywell's European operations, C. B. Meech, vice president in charge of the firm's international division, announced recently.

Mr. McCardle, who joined Honeywell in 1946, has served for the past four years as market sales manager for residential gas heating controls with headquarters in the firm's Minneapolis home office.

Beam Products names Collins and Reinhart to new posts

A new Beam Products Manufacturing Co. warehouse at 18 Park End Place, Forest Hills, L. I. 75, N. Y., has been opened under the direction of Albert J. Collins, according to L. C. Zonker, general manager.

Mr. Collins' background includes 16 years as northeastern manager for one of the best known fork lift manufacturers where he was a pioneer in the installation of L. P. gas in these vehicles.

Also announced is the appointment of Howard A. Reinhart as midwestern regional manager, with headquarters in Cleveland. He will supervise sales of Beam carburetion products in Indiana, Michigan, Ohio, Kentucky, Ontario, western New York and western Pennsylvania.

Mr. Reinhart has been engaged in automotive engineering and sales work for nearly 30 years. He spent seven years as a field engineer for the Ethyl Corp. in northern California and the Pacific Northwest.

Braatz is supervisor of quality control at Mueller

Walter W. Braatz has been appointed to the newly created position of supervisor of quality control at Mueller Climatrol, division of Worthington Corp., it is an-

nounced by Frank J. Nunlist, executive vice president.

Mr. Braatz has been with the sales engineering department for the past two years.

First Acceptance Corp. names two vice presidents

Clarence A. Adams, Jr., and Donald E. Bates have been elected vice presidents of First Acceptance Corp., Charles Arnao, president, announced recently.

Both men were elevated by the board of directors' action from assistant vice president.

Balderston, board chairman, retires from Philco Corp.

The Philco Corp. announces that William Balderston, chairman of the board of directors, is retiring from the company after 26 years of loyal and distinguished service.

In 1930 Mr. Balderston joined Philco to organize the car manufacturers division.

During the war, he made his headquarters in Washington to act as liaison between the Army and Navy and Philco.

In 1944 Mr. Balderston was named vice president in charge of operations of Philco and in this capacity directed the company's reconversion to civilian production at the end of the War. From 1946 to 1948, he served as executive vice president of Philco, and was elected president of the Corporation in 1948. He became chairman of the board in August 1954.

Brumder elected to Pressed Steel's board of directors

The election of H. E. Brumder, vice president in charge of engineering and manufacturing, to Pressed Steel Tank Co.'s board of directors is announced by Herman Merker, president. Mr. Brumder also is president of Downingtown Iron Works Inc., division of the company.

Mr. Brumder's career with Pressed Steel began shortly after his graduation from Yale in 1939. He later became chief engineer at Pressed Steel. In 1952, he became general manager of the Downingtown division. In 1954, he was elected president and treasurer of that division. Mr. Brumder was made vice president of Pressed Steel in 1955.

General Electric names Gifford to manager of engineering

Richard P. Gifford has been named manager of engineering for General Electric Co.'s communication product department in Syracuse, N. Y.

The appointment was announced by Harrison VanAken Jr., general manager of the department, who said Mr. Gifford will have responsibility for coordinating General Electric's engineering activities in the fields of mobile radio communications, microwave relay, power line carrier current and terminal equipment.

William C. Hagler

William C. Hagler, 54, assistant manager of the liquid petroleum gas division of the sales department for Phillips Petroleum Co., died suddenly on January 11 at his home in Bartlesville.

Mr. Hagler joined the Phillips Co. in 1944 at Amarillo, Texas, as a salesman. He was with the sales department in Denver, Colo.; Amarillo; and Raleigh, N. C., before moving to Bartlesville in January 1956, as L. P. gas sales assistant manager.

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Assures QUALITY Unsurpassed

Model 401-8 Open Model 422-IEHW

Any way you look at it, the quality of BROWN Gas Ranges is unsurpassed. The guaranteed quality of all BROWN products is evident in both the model 401 and the model 422 (20") gas range.

Features of the model 401 are: EZE-Kleen broiler • EZE-out oven bottom • fiberglas insulation • lift up top • 2 giant and 2 regular burners •

The model 422 features the above advantages PLUS: windoor • Micro-Lite ignition • Sof-Glo backguard • electric clock and four hour timer.

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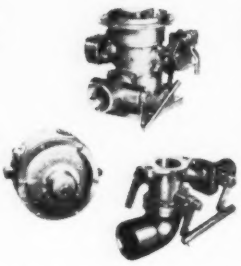
Many new developments will be announced soon as a result of our new and larger research and development facilities at Decatur, Illinois.



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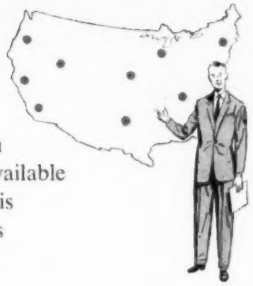
Century's carburetion specialists are now available on a nation-wide basis to help you with sales and service.



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MORE AND MORE DEALERS are discovering that Century, as part of the Borg-Warner team, offers the greatest opportunity in the LP-Gas industry. Many dealers, who in the past sold only appliances, now have discovered the vast sales potential and big profits made available thru sales of carburetors and LP-Gas as a motor fuel.

Yes, Century means business this year for every LP-Gas dealer who will let us show him how Century carburetion assures customer satisfaction . . . how Century makes it easy to select the right equipment . . . how Century provides factory trained help for sales and service problems.

Get set for more business this year. Guarantee your share of the big LP-Gas motor fuel market; write today for complete information.

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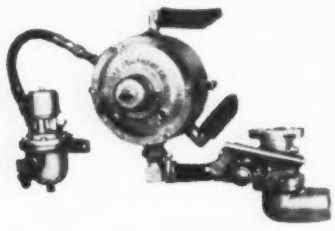
Century's years ahead carburetion is simple and compact in design for easy installation and trouble-free performance. The Century metering valve carburetor requires only tune up adjustment—you set it! Seal it! And forget it!

For customer satisfaction, demand the dependability of a complete carburetion system—install Century.



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Century Gas Equipment
Marvel-Schebler Products Division, Borg-Warner Corp.
625 Southside Drive, Decatur, Illinois

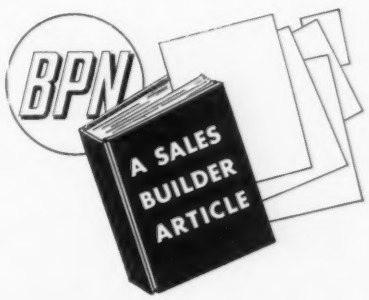
Illinois taxicab fleet saves $60 per month per cab with LPG

By L. H. HOUCK

SAVINGS of $60 per month per cab as the result of conversion to propane are reported by Bloomington Yellow Cab Co., Bloomington, Ill.

This company, owned and operated by O. W. Hetzler, operated 23 cabs around the clock. Twelve cabs are now using L. P. gas exclusively and others are being converted as rapidly as possible since Hetzler decided after a one year trial on one cab, to go to L. P. gas fuel exclusively. Changing over a large hard-worked taxi fleet is not a simple process.

In Mr. Hetzler's fleet, four cabs have gone more than 200,000 miles and will be replaced. While he has been using Plymouths with 6-cylinder engines for a considerable time and they are doing an excellent job on L. P. gas, he is converting his entire fleet to a commercial cab unit which is manufactured under the name of Checker. These new specially designed cab units are made to take



Part of the propane-powered Bloomington (Ill.) Yellow Cab Co. fleet stands ready to roll. Oil is changed at 25,000 miles instead of at 1500 as with gasoline.

the stress of cab service and are equipped with 6-cylinder Continental engines. Several of these units have been converted from gasoline to L. P. gas and they are turning in top performance.

Changing to the new fuel came about a little over a year ago when he and Al Browne, a sales representative of a steel tank company, got to talking about L. P. gas in a fishing and hunting camp Mr. Hetzler owns in Canada. Mr. Browne mentioned that he had sold tanks for a taxicab fleet in Milwaukee and asked Mr. Hetzler why he didn't try one cab for a year and thus discover for himself whether L. P. gas would do the job for him and save him money besides.

Cab owner Hetzler put L. P. gas equipment on a 1954 Plymouth at a cost of $275. The car had already been operated 30,000 miles on gasoline. It was driven 150,000 miles on L. P. gas and never touched except for routine minor tuneup. Careful records were kept of this unit and the savings developed were in excess of the $60 per month plus a host of other advantages.

Mr. Hetzler said some of the biggest savings accrue from reduced need for service and oil.

"One of the troubles with a taxicab fleet," Mr. Hetzler said, "is that carburetors and crankcases foul up from excessive idling which is peculiar to this business. After we changed to L. P. gas we eliminated this trouble."

The cab company head said his cabs now start easier in cold weather even down to 15 and 20° below zero.

Oil remains cleaner, Mr. Hetzler said. On L. P. gas units, oil is changed only at 25,000 mile intervals and oil filters are changed at 5000 miles. With gasoline jobs, oil has to be changed every 1500 miles.

A surprise dividend was that all the drivers like L. P. gas better because it supplies smoother and steadier power, Hetzler said.

The changeover from gasoline to L. P. gas is made in Mr. Hetzler's own service shop where two mechanics take care of the maintenance of the cab fleet.

The equipment used is Century which is now made by Borg-Warner at nearby Decatur, Ill., and Mr. Hetzler said that conversion is so simple that anyone can make an efficient installation.

He said two men can convert a taxicab engine to L. P. gas in six hours and one man can do it in a day.

The firm puts 22 gal. Pressed Steel Tank Co. tanks in the trunks. A combination carburetor is not used since gasoline is never burned after a unit has been converted. Mr. Hetzler said that if some emergency made it necessary to use gasoline, it would be a simple matter to lift off the L. P. gas carburetor and set the gasoline carburetor back on as they both use the same air filter and the hookup is simple.

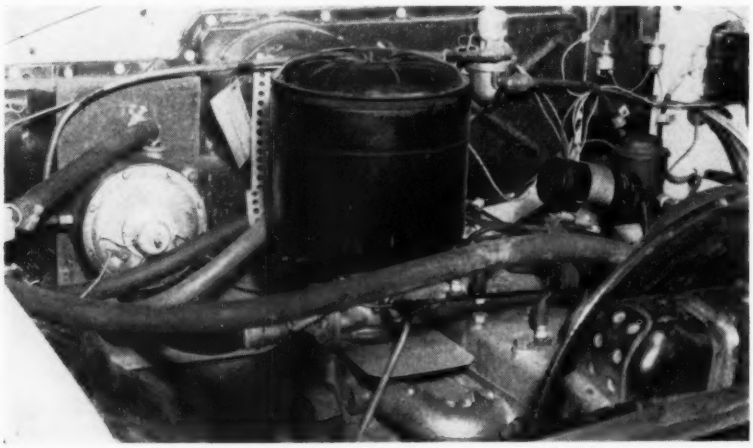
Instead of using conventional "T" joints to hook up the hot water line inside the engine compartment, Mr. Hetzler makes a "Y" fitting in his own shop which makes for better flowing and quicker heating.

A 1000 gal. Pressed Steel Tank Co. L. P. gas tank was installed at the service shop of the Yellow Cab Co. and cabs are serviced and filled every morning. Mechanics lubricate the cabs at 1500 mile intervals and periodically wipe out the L. P. gas carburetors.

Mr. Hetzler's operation was spotlighted recently at the American Taxicab Association convention in St. Louis and Mr. Hetzler drove one of his L. P. gas-equipped cabs from Bloomington to St. Louis as a demonstration. There he presented his findings and experience in a paper.

Yellow Cab is supplied with L. P. gas by the Illinois Butane Gas Co., Bloomington, of which Ivan Togstad is local manager. ■

A look into the front end of a Bloomington Yellow Cab shows the regulator to the left of the air cleaner, the switch valve at the top right of the air cleaner, and the "Y" connection at the extreme left of the photo which allows unrestricted flow of water to vaporizer.



A look into the rear end shows the 22 gal. L. P. gas tank. Tanks are filled each morning from a 1000 gal. storage tank.

CARL ABELL, editor of BUTANE-PROPANE *News* and author of the *Butane-Propane Power Manual*, discusses . . .

Handling operating problems of L. P. gas engines

Part one

PROBLEMS which arise in the operation of L. P. gas engines are of three types: (1) those which occur because of lack of understanding and wrong practices of the operator, (2) those which would arise under like circumstances if the engine were operating on gasoline, and (3) those which are peculiar to the L. P. gas fuel system. The majority of operating difficulties will be found to fall in the first two categories, just as they always have with any other fuel.

The operator of the L. P. gas engine quickly discovers a great similarity in operation between this and the gasoline engine with which he has long been familiar. The starter has the same effect; speed and power are controlled by the old familiar throttle; the ignition system consists of the same units that he has always seen on engines.

But the fuel system is different. The units are different in appearance, because they must handle a fuel that is normally vapor, instead of normally liquid. There is an element of panic in the unfamiliar, so it is quite normal for the man operating his first L. P. gas engine to blame everything that happens to it on the fuel and the equipment through which it is delivered to the engine.

Carburetor wrongly blamed

There is nothing new about that situation—for all the years that we have been driving gasoline engines, 90 per cent of the troubles which the operators have diagnosed as carburetor trouble have turned out to be something else. Any experienced tune-up technician will verify this. He will tell you of the many, many cases in which the owner's complaints of carburetor trouble have turned out to be faulty ignition, weak batteries, choked exhaust systems, or even dragging brakes.

With this standard practice of blaming the gasoline carburetor for nearly all of the belly-aches of the gasoline engine, it is only natural that the L. P. gas fuel system, with its unfamiliar units, should be blamed for an even higher percentage of the ills of the engines which operate on the dry-gas fuel.

Good gasoline engine tune-up men listen to the operator's complaints, try to determine the precise symptoms shown by the ailing engine, then check the general condition of the engine, and the health of the ignition system, *before they touch the carburetor.* The successful L. P. gas trouble shooter will follow exactly the same procedure. He will not be panicked by the operator's assumption that the fuel system must have gone wrong—because it is unfamiliar.

Right service man

With the above thoughts in mind, it becomes obvious that the first problem of the L. P. gas dealer who plans to service propane-powered engines, or to handle conversions to L. P. gas, is the selection and training of the right kind of service man to handle the problems of the customers and the engines.

This service man needs to have several special qualifications. He needs primarily an analytical mind and a thorough training in engine principles, so he can start with the symptoms and go back through the correct chain of reasoning to the cause of the difficulty. A good gasoline engine tune-up man has these qualifications.

The tune-up man who is really good has learned that his instruments tell him the truth. He has learned now to interpret their readings in terms of cause and effect. He knows how to correct the troubles which his instruments point out. *His experience has shown him that it is not possible to tell how any carburetor is functioning as long as there are uncorrected defects of compression, vacuum, or ignition.*

If the prospective LPG service man already has successful tune-up background on gasoline engines, he is familiar with most of the mechanical details which are necessary for his new assignment, and the completion of his training is simple and easy.

There are a number of sources of this final training. Since we all learn more readily by seeing than by reading or hearing, it is desirable if possible to have the trainee attend LPG carburetion demonstrations. These are conducted periodically by the tractor companies putting out propane-equipped models, by several of the LPG carburetor manufacturers, by special schools operated as auxiliaries of the LPG industry, and by state associations of butane-propane dealers.

While such training is desirable, it is not absolutely necessary. The background information can be gotten from books, and the mechanical details and service procedure of each make of carburetor may be obtained from its manufacturer.

In addition to the background knowledge and service tune-up experience, the LPG trouble-shooter needs the patience, courtesy, and tact which will qualify him as a creditable representative of the firm. In introducing any new mechanical contrivance, knowledge of human nature is just as important as knowledge of the product.

Tune-up instruments

It has long been recognized in the automotive service business that as the compression ratios of passenger car engines went up, their sensitivity to defects and mis-adjustments increased. Tune-up instruments came into almost universal use, not to make an impressive show or to sell more parts, but because there was no other way

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fast pick-up
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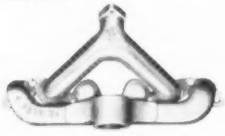
For John Deere A, G, "50", "60" and "70"... also Minneapolis-Moline "U". Johnson Aluminum Pistons are available for John Deere A, B, D, G and H models



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to properly service these sensitive engines.

Tractor engines lagged behind the passenger car power plants in compression ratio, sensitivity, and need for critically fine adjustments, not just because they were tractor engines and "who cares if they run rough?" but because they were relatively low compression engines.

The new propane engines, and a great many of the converted tractor engines, are on the level with, or even higher in compression, than many of the older standard automobile engines. Suddenly the tractor industry needs tune-up instruments, and tune-up skill, just as urgently as the passenger car end of the industry. A great many tractor agency shops have been caught with their instruments down.

The minimum available instruments at even a small shop doing tractor work should include the following:

Vacuum gauge
Compression tester
AVR set (ammeter, voltmeter, variable resistance)
Coil tester
Condenser tester
Air-fuel ratio analyzer
Spark plug gap gauge

These instruments are basic to the servicing of any battery ignition engine, running on either gasoline or propane. For the propane fuel system, these instruments are essential:

Low reading pressure gauge, 0 to 15 or 0 to 30 lb
High pressure gauge, 0 to 300 lb
Portable water manometer
Depth gauge or carburetor manufacturers' special regulator gauges.

Tune-up men, and those familiar with testing equipment, will recognize that the above is not a complete list of essential instruments. It is still quite important that a distributor tester, or a cam-dwell tachometer should be available somewhere. Conceivably, some shops might be so small that it would be better to take the distributor work to some well equipped tune-up shop—if such a shop is available. The absence of these instruments creates the need for a stock of replacement distributors of the models which might require service, particularly for service work in the field.

Ignition timing

A neon timing light is also very convenient, as it enables the mechanic to return the ignition timing to that which gives the best results, with the least loss of time, after that best timing point has been determined.

This optimum timing point will not be the same with propane as with gasoline—it will be a few degrees earlier, on account of the slower burning of the fuel. It will not be the same timing point with a high compression head on pistons as with a lower compression, because the rate of flame travel increases in the higher pressure chamber. And the best timing point will not be the same in Colorado as it is in Mississippi, even in the same engine using the same fuel. The atmospheric density differs at the two altitudes, which has exactly the same effect as changing the compression ratio, as far as combustion speed and operating pressures are concerned.

The importance of these differences becomes more pronounced in the higher compression engines, so it is increasingly important, in working for maximum power, economy, and even engine life, that the ignition be timed at the most favorable possible point. This is not just below the knocking point—a practice which is frequently used in setting the timing of gasoline engines—and it may not be correct with that fuel.

In any engine, the ignition timing which gives the best economy, and the longest engine life, is that which gives maximum power—provided that the fuel will operate without knocking at that ignition setting. This may or may not coincide with the ignition timing mark which the manufacturer put on the flywheel or the vibration dampener.

With a change in fuel, or a change in compression ratio, or a change in elevation, the best timing point may be several degrees off the mark. It should be determined for each individual engine, either by means of a test under actual power conditions, or with an

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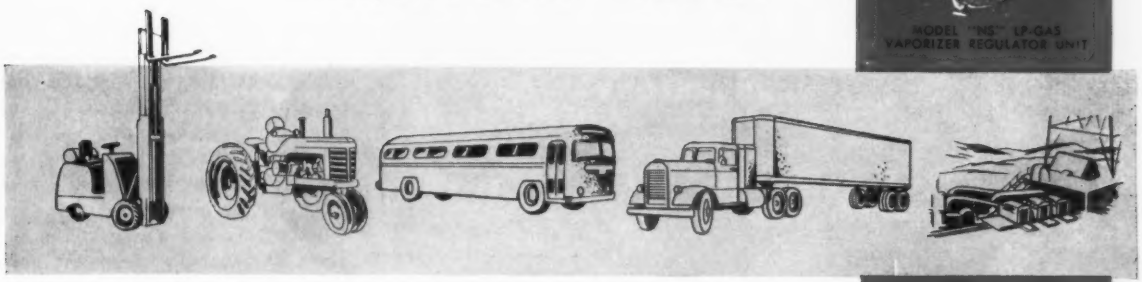

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electric tachometer, shorting out enough cylinders to "load" the engine.

After the timing point is determined, by either of these methods, the correct firing point should be indicated on the flywheel or the vibration dampener, either by punch marks or with white paint. This procedure will save time when it is again necessary to service the engine, as the timing may then be returned to the peak power setting by the use of the timing light, which is the quickest method available to the average shop.

In timing the gasoline engine, it frequently happens that the spark can not be advanced to the point of maximum power because it causes fuel knock. If this is the case with any particular engine, then the best compromises are either to use a better fuel, which will permit full-power timing, or time the ignition late enough that fuel will burn without knocking. Since most engines, particularly in passenger cars, can use a little more anti-knock value than the owner provides, it is very general practice to time engines "just below the knock." In those cases in which the fuel has more anti-knock value than the engine can utilize, this procedure results in timing the engine too early, which gives lower power, lower economy, greater top-cylinder wall wear, and greater possibility of losing connecting rod bearings.

The engine also runs rougher at low speeds, and is generally harder to start. The better mechanics are familiar with this situation, and take pains not to advance the timing too far in the gasoline engine. It is emphasized here because the possibility of setting the timing too early is considerably greater in the propane engine. The engine runs so much more smoothly at idling and in the low speed range that the timing may be considerably over-advanced before the operating characteristics give any evidence.

Early ignition timing is just as hard on bearings, and bad for economy, as with the gasoline engine. It is also a frequent contributing factor to hard starting, which is the most frequent service complaint with propane engines. ■

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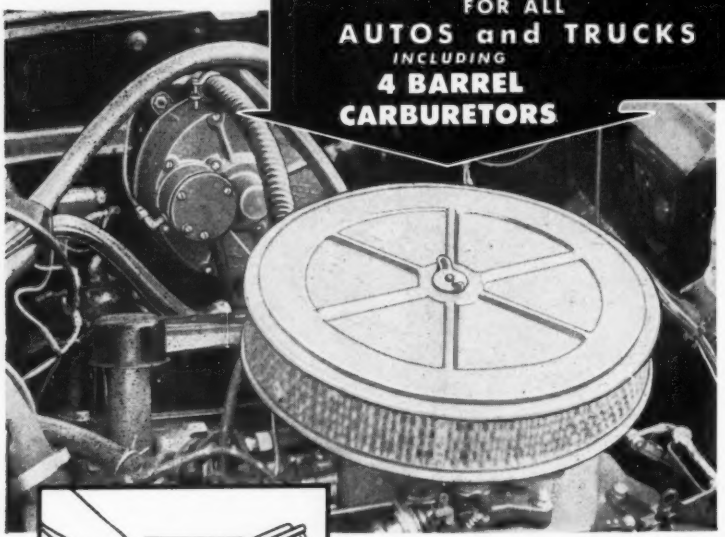

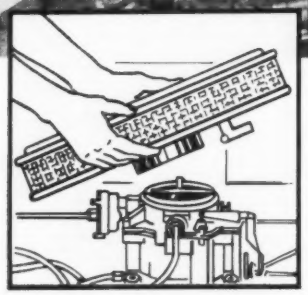

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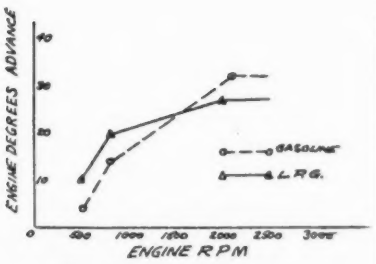
Power and Economy complaints on heavy duty engines

COMPLAINTS of lack of power and poor economy in converted heavy duty engines are sometimes caused by improper distributor advance curves. The curve that is right for the gasoline engine is not ideal for the LPG engine, particularly in heavy duty truck and industrial use. Century Gas Equipment Co. suggests the following procedure for improving the performance of these engines:

The distributor advance curve shown herewith is used to illustrate the difference between gasoline and LPG requirements. About 95 per cent of high speed engines operating today that have con-



The distributor advance curve.

verted to L. P. gas are still using gasoline advance curves. This does not mean that 95 per cent of the conversions are not satisfactory, but it is very probable that customers that are complaining of lack of power and mileage, might be helped by a modified advance curve.

The question then arises, what is the right advance curve for a given engine. Each engine depending on it's original design and any modifications made has an advance requirement all its own. For example, an OA 331 Reo has a different requirement than the OH 160 engine, on gasoline as well as LPG. These two are the same basic engine; the 160 engine has a modified cylinder head, camshaft, manifold, and illustrates the type of modification that effects the spark requirement.

Most manufacturers that have engines designed to burn L. P. gas have special distributors available for those engines. However, there are many popular trucks that are still not available with L. P. gas engines, and in those cases it will be necessary to modify the gasoline distributors. It should be pointed out that we are primarily referring to *truck applications*, since they are far more critical to proper advance curves than tractors, lift trucks or stationary engines.

To determine the total amount of advance required, use the following procedure:

1. Set the idle stop screw to recommended idle speed, then advance (or retard) the distributor to the highest manifold vacuum, without resetting the idle stop screw. Check this setting with a timing light and record the number of degrees advance shown on the

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flywheel or degree plate on the distributor.

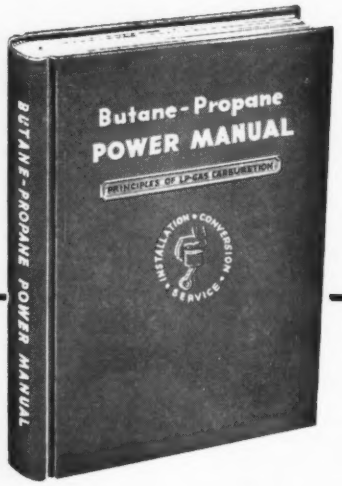
2. *Cold start* engine at this setting to be sure that setting does not effect starting characteristics.
3. At *normal engine operating* speed, set distributor for best power (Dynamometer preferably) and record number of degrees advance (or retard) at this speed.
4. Subtract the difference in these two settings and divide this figure by two. Do not divide by two if using distributor degree plate.
5. Remove distributor and on a distributor machine (or with protractor) reduce the total advance by the number of degrees found in Step No. 4.

Example—In Step No. 1 the setting was found to be 8° before TDC. In Step No. 3 the setting was found to be 2° after TDC (or a —2°). The difference is 10° divided by 2 or 5° for item 5.

This does not give a perfect curve between idle and normal engine speed, but it is considerably better than the gasoline curve.

An exact curve can be determined by checking for best power at 200 rpm intervals at wide open throttle and changing springs and weights to match this curve. ■

Sell the LPG Power Market



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198 S. ALVARADO ST., LOS ANGELES 57

Vertical tanks save space

By ROBERT J. SIPCHEN

IN service stations and fleet maintenance bases the use of vertical tanks is sometimes necessary because of limited space. While these do reduce the space required for storage, they present certain problems that are not encountered with horizontal tanks.

Study of some of the installation features of a 10,000 gal. wc vertical tank recently installed by Bob Ross Inc. in the fleet yard of the Des Moines Transportation Co. in Chicago will point out some of these problems and their solution.

The foundation for the upright tank must be designed to provide stable support, considering both the nature of the underlying soil or rock, and the anticipated wind pressure against the sides.

This particular tank was set on a reinforced concrete foundation 9 ft. in diameter and 4 ft. high, with only 1 ft. above ground level. This in turn rests on a footing 12 in. deep and 10 ft. sq. This was

A 10,000 gal. wc tank installed in the fleet yard of a transportation company.

accepted by the Building Department as adequate to carry the static and wind loads. To relieve any strains that might result from possible settling of the structure the piping to the pumps, which are on a separate foundation nearby, was equipped with metal swing joints.

Gauging of a vertical tank is another problem. It is not possible to gauge the entire height of the tank with a single magnetic or rotary type gauge, as is done with a horizontal tank. A slip tube gauge on a tank of this height is impractical. It is necessary to know when the liquid level is down near the bottom, so fuel may be ordered in time to prevent running out. A gauge to show the upper level is also needed to prevent overfilling.

In this particular case two magnetic gauges were installed to give the readings from 5 to 43 per cent at the bottom, and 59 to 98 per cent at the top. In this case the liquid level in the center portion was not considered important enough to justify the cost of a third gauge, although there is a capped hole in the tank where the central gauge can be installed if desired at a later date.

The bottom of the liquid space in this tank is lower than is customary in horizontal tanks, and thus the head over the pump is low when the fuel level in the tank is down. In order to avoid suction troubles when pumping under these conditions, pipeline and valve capacity are 20 to 40 per cent oversize compared with customary practice. Pumps are of positive displacement type, 90 gpm on the transport unloading line and 30 gpm on the line that goes to the dispensing island. The pumps are piped and valved in parallel, so in emergencies either pump can be used for either purpose.

All installation details conform to provisions of Pamphlet 58 and the applicable local codes. Extra protection is provided at the dispenser by including a breakaway feature backed up by excess flow valves. This assures immediate and automatic closing of the line in case the dispenser ever gets knocked over, or if somebody drives off with the hose connected.

The tank and pumps are enclosed in a manproof Cyclone fence with barbed wire protection at the top. The fenced area is 15 x 19 ft. ■

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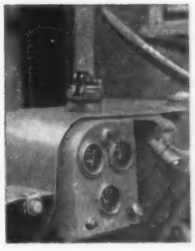

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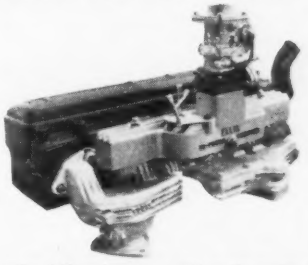

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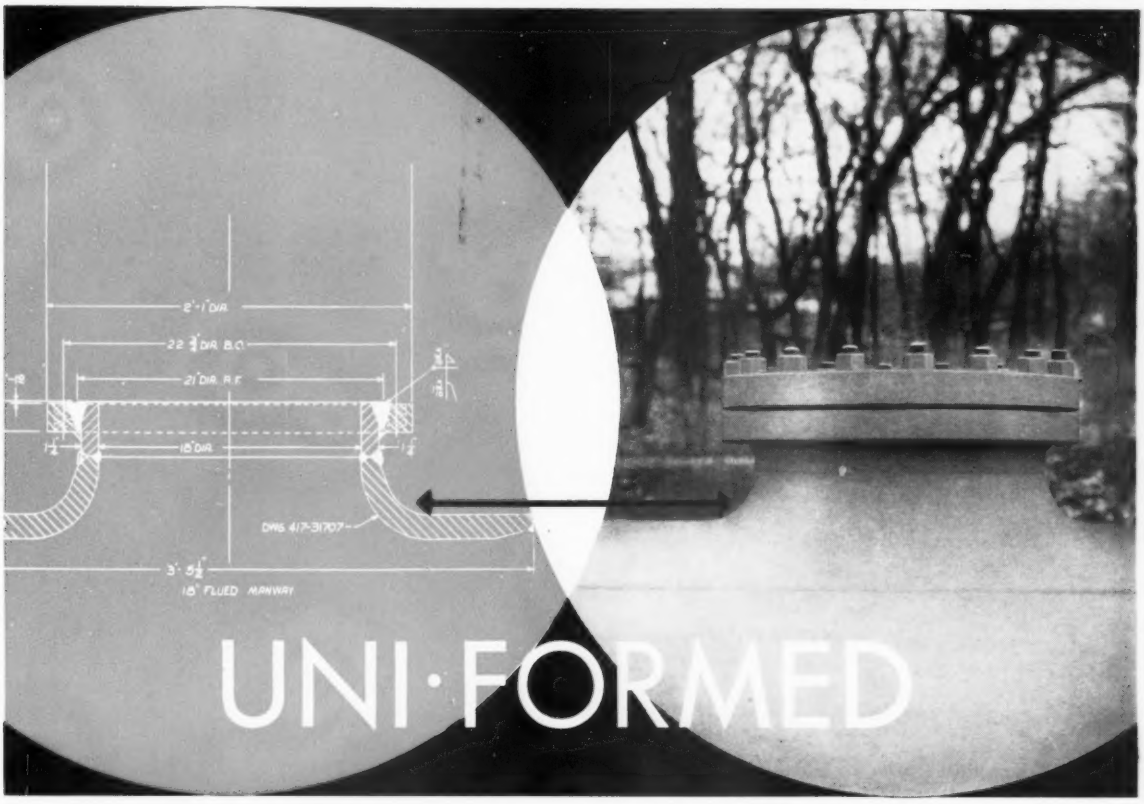

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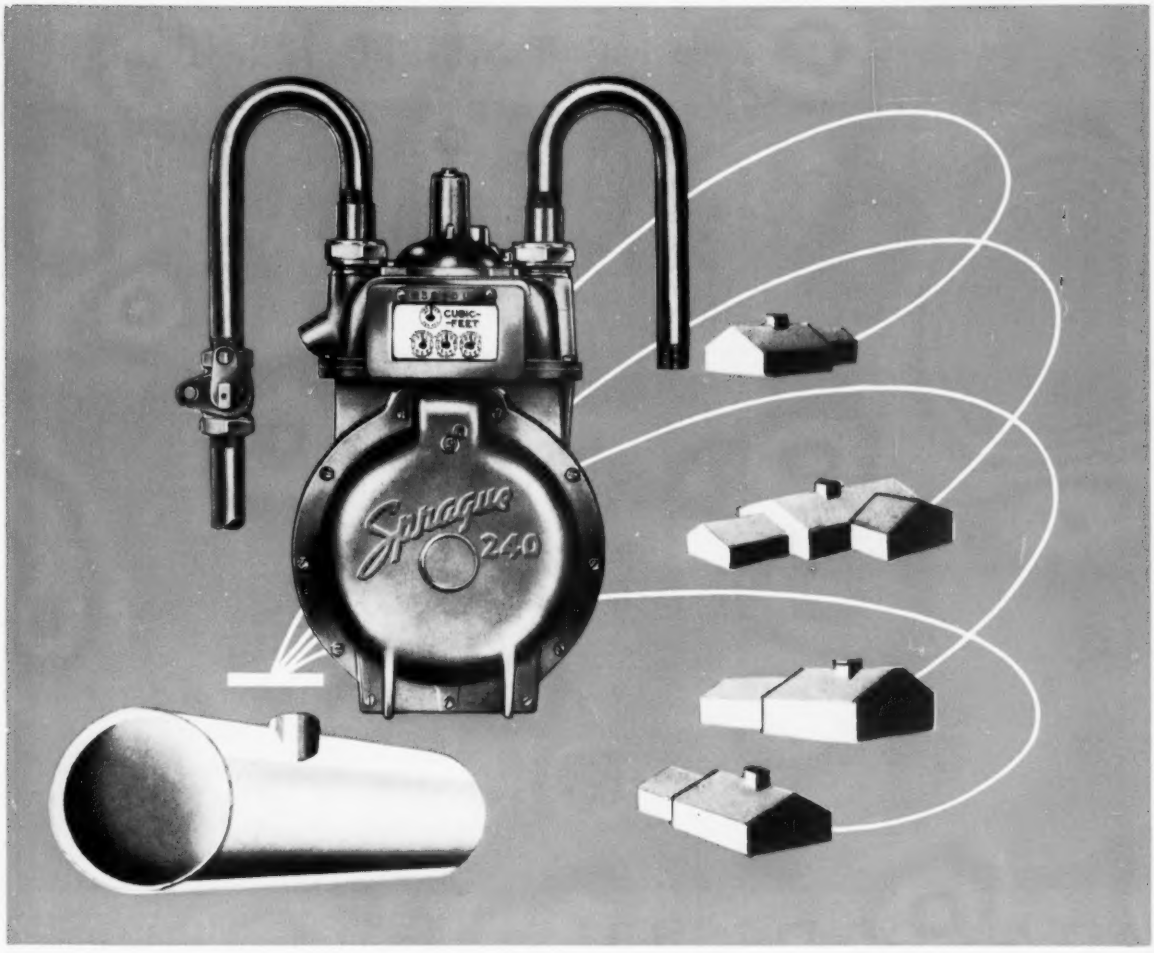

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